RELATIONSHIP OF SOCIAL MEDIA AND RAPIDLY EVOLVING TECHNOLOGY ON APPROACHES TO LEARNING IN THE MILLENNIAL GENERATION

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RELATIONSHIP OF SOCIAL MEDIA AND RAPIDLY EVOLVING TECHNOLOGY ON APPROACHES TO LEARNING IN THE MILLENNIAL GENERATION

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Abstract:

The purpose of this study was to identify the approaches to learning of the millennial generation and to describe the student's perspective on the relationship that social media and technology has on individual approaches to learning. This study specifically identified the demographic profile of the generational group who were business freshmen students currently taking courses in their first semester of college. Completed surveys were received from 136 freshmen at a Midwestern university, consisting of items regarding technology and social media frequency of usage and Attitudes Toward Thinking and Learning (ATTLS) for identifying approaches to learning. The data were analyzed using descriptive statistics and an analysis of correlations to explore any relationships between technology and social media usage on individual approaches to learning. The findings indicated weak correlated relationships between the students reported usage of technology to learning, with no significant relationships identified between the usage of social media. The survey given to the participants included open response questions regarding their expectations of college, resulting in a better understanding of the participants' approaches to learning and what they feel allows them to be successful. Four themes emerged from the analysis of responses: time management, faculty/student relationship development, course design, and the students' awareness of their learning preferences. The generational characteristics in this study were identified based on age and exposure to technology; however, this study found that daily technology and social media immersion had minimal to no significant relationship with the method in which individuals approached their own learning and problem solving.

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CHAPTER 1

INTRODUCTION

The volume of information and available technologies accessible to students at any given moment continues to increase exponentially (Nielsen Smartphone Usage, 2016; Pew - Mobile Fact Sheet, 2017), while educational institutions struggle to keep up with these apparent world changes. Research presented by Howe and Strauss (2000) and Prensky (2001a, 2010) has speculated there is a generational divide based on the exposure to and use of technology and cultural diversity. Howe and Strauss (2000) described this generation as the millennials, a group more affluent and better educated than prior generations. Prensky (2001a, 2010) described this new generation of "digital natives" as individuals who grew up with a strong technological presence in everyday life. It has been suggested that students of the 21st century expect more interaction with other students and with their instructor (Goldman & Martin, 2016; Prensky, 2010; Howe & Strauss, 2000). The driving forces behind this need include a change in skills needed for jobs and an evolving economy with more global economic social structures and an ability to use diverse technological advances (Anderson & Gantz, 2016). It is the responsibility of instructors to understand the impact that these driving forces have on the approaches to learning of students. According to Prensky (2010), engaged student learning commonly comes from "after school learning" through peers, Internet, YouTube, television, games, cellphones, and after school programs such as Robotics. The medium, or technological tools, through which students obtain information continues to evolve. Each student learns differently, and it becomes

the responsibility of the instructor to meet these needs. It is important to understand students' style of learning because it is different for every learner (Galotti, Clinchy, Ainsworth, Lavin, & Mansfield, 1999; Galotti, Drebus, & Reimer, 2001; Philbin, Meier, Hampton, Pearce, & Moser, 2017; Huffman, & Boverie, 1995; Mupinga, Nora, & Yaw, 2006). Many children are now considered proficient with computers by the age of three (Prensky, 2001a, 2010), having grown up immersed in technology (Williams, Crittenden, Keo, & McCarty, 2012). The environment of this generation of students is a participatory culture through social networking platforms such as Twitter, LinkedIn, and Facebook, which are used in socializing, advertising and education (Manafy & Gautschi, 2011; Williams et al., 2012). Companies are using these same tools to now target this generation of students which raises the question of whether education is equipped to meet these changing demands and the impacts of 21st century culture.

There's a great deal of disagreement about generational constructs and the effects on education; however, this study further explores relationships of generational characteristics, technology, and social media usage with approaches to learning. While multiple terms have been used by researchers, authors, and popular media to describe the generational group born between 1980 and 2000, the researcher has chosen to use the term millennials in this study to describe this group of students.

Conceptual Framework

The conceptual framework for this study begins with the independent and dependent variables of the study: generational characteristics and approaches to learning. The generational characteristics of this study are defined using Marc Prensky's (2001a, 2001b, 2010) digital natives and Howe and Strauss' (2000) millennials. Prensky (2001a, 2010) and Howe and Strauss (2000) suggested that technology immersion and the social interactions afforded by social media

play a role in a student's approach to learning. The proposed conceptual framework illustrates rapidly evolving technology and the usage of social media with McLuhan's Medium is the Message, which emphasized the implications of new technology (or the medium) beyond the context of its current use (Euchner, 2016).

Approaches to learning for this study were measured using Galotti's (1999) Attitudes Toward Thinking and Learning Survey (ATTLS), an instrument that looks at the way individuals acquire or process information and their approaches to problem solving. Galotti et al. (1999) and Galotti (2002) refer to this instrumentation as the "ways of knowing" framework, which indicates the mode of thinking individuals use in the construction of knowledge with focus on two distinct types of knowledge which were identified as separate knowing and connected knowing. *Separate knowing* represents objective, detached and more critical thinking knowledge while *connected knowing* represents areas of more experience and collaborative based learning (Galotti et al., 1999).

This study acknowledges the many individual characteristics of learners but focuses specifically on generational constructs to contextualize the influence on approaches to learning measured by the ATTLS instrument. The framework is conceptualized in Figure 1.

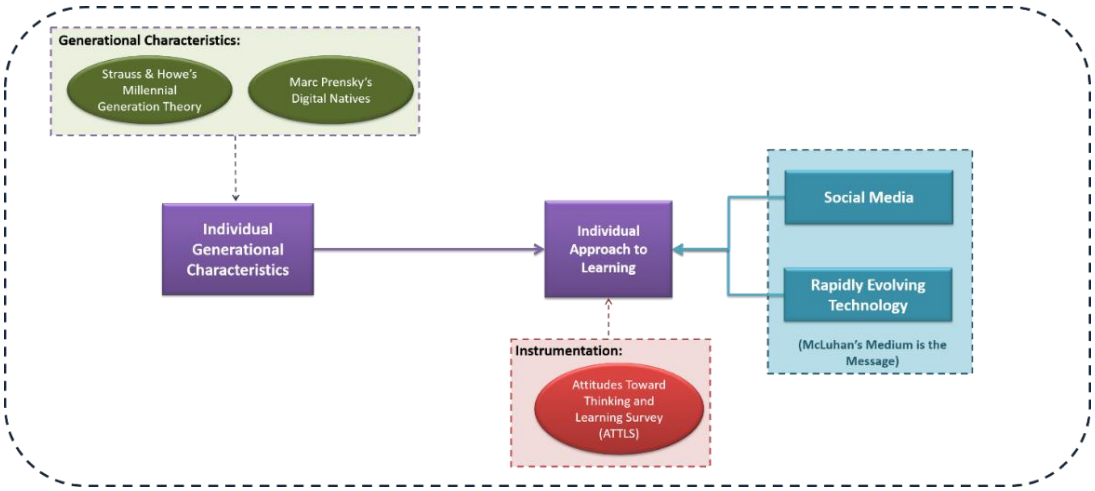

Figure 1. Conceptual framework.

Statement of the Problem

Students of the millennial generation have grown up in a diverse, rapidly-changing, digital culture. The relationship and influence of the age of the student, the role of social media, immersion in technology, and the student's approach to learning continues to be considered but is still not well established. Furthermore, it has been suggested that these generational characteristics play a role in how students learn (Prensky, 2010; Small & Vorgan, 2008). This lack of a thorough understanding of the relationship between these four components could lead to resources, including personnel, time, and money to be used in areas which might not be influential to the learning of the student. In a time when these resources continue to be limited, knowledge of the relationship of these four components could allow for optimal student learning to occur and more effective use of educational resources.

Purpose of the Study

The purpose of this survey research study was to describe the student perspective on the relationship that social media and technology has with individual approaches to learning and to identify those approaches to learning of the millennial generation. Specifically, this study identified the demographic profile of the generational group who are business freshmen students currently taking courses at the collegiate level and the relationship of social media and rapidly evolving technology on individual approaches to learning.

Significance of the Study

Understanding the generational gaps through demographic profiling and identified approaches to learning is important to instructional design and the improvement of learning outcomes in college courses. For the professor, understanding the approaches to learning of students allows exploration of the learning environment expected in college courses. This study

describes the relationship of social media and rapidly evolving technology in the millennial generation, using a sample of those between the ages of 18 and 33. A greater understanding of the use of social media and technologies and whether it is used at all is needed to determine what future research could contribute to this area of study. We know that parts of social media are used, but as researchers, we are unsure how it is being used or how this affects the learning process.

Research Questions

The following research questions guided this study:

1. What is the demographic profile of millennial students enrolled in a freshman seminar course?
2. What are the self-identified ways of knowing as measured by the Attitudes Toward Thinking and Learning Survey (ATTLS)?
3. What is the relationship between technology usage and the separate knowing and connected knowing categories of the ATTLS?
4. What is the relationship between social media usage and the separate knowing and connected knowing categories of the ATTLS?
5. How do millennial students enrolled in a freshman seminar course describe their learning experiences?

The research questions and how data will be analyzed are presented in Table 1.

Table 1.

Research Questions, Data Sources, and Data Analysis Techniques

Research Questions	Data Sources	Data Analysis
RQ 1	Demographic Data	Descriptive statistics; Graphical representations
RQ 2	Attitudes Toward Thinking and Learning (ATTLS) Construct	Cronbach's Alpha, Descriptive statistics; Graphical representations
RQ 3	Technology Usage and Identified Technology Importance Data	Descriptive statistics, Graphical representations; Spearman correlation
RQ 4	Social Media Usage Data	Descriptive statistics, Graphical representations; Spearman correlation
RQ 5	Open Response Data	Content analysis (Summative)

Definition of Key Terms

This section defines the terms used throughout this study. The conceptual definitions are used to define what each of the terms mean in context to this study. The operational definitions are used to define how they are being measured.

Conceptual Definitions

- Approach to Learning: In this study, approaches to learning was measured with the Attitudes Toward Thinking and Learning Survey (ATTLS), which determined methods used in constructing knowledge (Galotti et al., 1999; Galotti, 2001)
- ATTLS: 20-item instrument that measured the individual's ways of knowing consisting of two subscales, each consisting of a set of 10 statements (Galotti et al., 1999)
- Connected Knowing: Category in the ways of knowing survey (ATTLS). Connected knowers try to look at things from the other's point of view to understand the others point of view rather than evaluate it (Galotti et al., 1999)

- Digital Native: According to Prensky (2001a, 2001b, 2010), these are individuals who have grown up immersed in technology and were born after 1980, who are said to have an innate confidence with using new technological tools (Prensky, 2001a, 2001b, 2010)
- Digital Immigrant: Term used for individual's individuals of an older generation who began using technology in their later years. According to Prensky (2001a, 2010), they are challenged by technology and show less familiarity with the language and use of digital technologies.
- Learning Preference: The different ways in which students prefer to collect and process information (Hampton et al., 2017; Mupinga et al., 2006)
- Generational Characteristics: characteristics based on age and culture of an era (Prensky, 2001a, 2001b, 2010; Strauss & Howe, 2000)
- Millennials: According to Howe and Strauss (2000), these are individuals born between 1982 and 2000, believed to have a higher focus on teamwork, achievement, modesty, and good conduct.
- Social Media: applications used for social networking (i.e. Facebook, Twitter, LinkedIn)
- Separate Knowing: Category in the ways of knowing survey (ATTLS). Separate knowing involves objective, analytical, detached evaluation of an argument (Galotti et al., 1999)
- Ways of Knowing – Framework including two distinct groupings: Separate Knowing and Connected Knowing. These refer to the individualized methods used in constructing knowledge (Galotti et al., 1999).

Operational Definitions

- Connected Knower (CK): grouping in ATTLS survey - indicating empathic way of knowing or an understanding of another's point of view (Galotti et al., 1999)

- Demographic data: Data collected for use in describing the sample of the study. Data collected for this study will include age, gender, ethnic/racial group, college/major, international student status, country, traditional or non-traditional student, part time or full-time student, and current semester of college.
- Instructional Strategies: approaches that professors may take in obtaining learning objectives
- Instructional Technologies: educational tools used in the classroom for learning
- Millennials: This generational category was based on age and exposure to technology (Prensky, 2001a, 2010; Howe & Strauss, 2000). The research used this term to encompass the proposed characteristics of both Prensky and Howe and Strauss.
- Non-Traditional Student: Those students who take more than a semester between their path of high school to college.
- Separate Knower (SK): grouping in ATTLS survey - indicating an attitude primarily characterized by its sense of detachment and objectivity (Galotti et al., 1999)
- Traditional Student: Those students who follow a path of high school to college, with no break in-between.

Limitations, Delimitations, and Assumptions of the Study

Several limitations, delimitations, and assumptions were identified in this study that could have impacted the internal and external validity. These have been outlined in the following sections.

Limitations

This study is limited by several factors and is, therefore, intended to be an initial investigation into areas that have previously not been contrasted to the best of the researcher's

knowledge. For the purposes of this study, surveys were distributed to students enrolled at a large business college with a majority of traditional student enrollment; therefore, results may not be generalized to all college/university students or campuses. It is also noted that the individual participant's culture may affect the results of the study. No efforts were made to obtain an ethnically diverse sample. The budget of the researcher may restrict the choices considered as research instruments for this study although the chosen instruments were satisfactory in the researcher's analysis. The research instrument chosen for this study had acceptable reliability and validity studies to support (Galotti et al., 1999; Galotti, 2001; Marrs & Benton, 2009). Additionally, as in any study, the study is limited to the honesty of the participants and potentially the types of people who choose to volunteer to participate in the study. The participants were cognizant that they are in a study, in which their answers would be kept confidential. Participants were instructed to answer honestly and not as they or others think they should answer. There were no efforts made to do a longitudinal study over time or to check the accuracy of their responses.

Delimitations

There are a few factors that narrow the scope of this study. For example, this study has been delimited to only first semester freshman business students enrolled in a seminar course. The responses in this study may vary among other colleges or educational levels. Another delimitation of this study is that the research was completed using a convenience sample in Fall semesters of 2013 and 2014. This study does not attempt to measure success of transition from high school to college, predict success in college courses, or determine or identify change over time.

Assumptions

This study was based on several assumptions. Firstly, the researcher was a university employee who taught multiple sections of the course used in obtaining the sample and was assumed that there were no effects on the findings of this study since the researcher had no access to the complete email list used by the director of undergraduate programs and had no direct communication about the study with any participants. It was assumed that the email list used was accurate and only included first semester freshman. The second assumption made in this study is based upon the honesty and accuracy of the participants' responses. The researcher assumed that students fully understood the questions and responded with honesty and complete accuracy. Third, the researcher assumed that the low response rate had to do with the survey not being part of the freshman seminar course requirements, but rather an opportunity to assist with research and to be entered in a drawing for an iTunes gift card. It is unknown the impact of the timing of the survey, as it was given to all participants at the end of their first semester at the university.

Summary

The study gathered demographic and comparative data to promote a better understanding of approaches to learning through examining the generational characteristics and other factors that may influence self-identified approaches to learning. This study will contribute to the literature in theoretical and conceptual frameworks of generational learning theory and the relationship this has on the approaches to learning of students. The intent of the research was to provide increased knowledge and further understanding to provide educators a better sense of how these learning frameworks influence individual approaches to learning. This study expanded upon previous studies of generational theory in the adult educational environment. With this is

mind, the study may influence factors of aiding individuals in the transition between high school and college.

This study consists of five chapters. Chapter 1 provides an overview of this topic conceptual framework, the purpose and significance of the study, and research questions to be addressed. Chapter 2 of the study provides a review of literature, including scholarly literature describing generational characteristics for this study, the ways of knowing instrumentation used and McLuhan's Four Laws of Media: Medium is the Message. Chapter 3 further explains the methods and techniques used to conduct the research of the study, from data collection and analysis procedures to instrumentation. Chapter 4 reports the results of data collection as measured by the demographic information, reported technology and social media usage, and approaches to learning determined by ATTLS. Chapter 5 discusses the results with further recommendations and implications to be used for future research.

CHAPTER II

REVIEW OF LITERATURE

Popular press often broadly describes recent generations and their societal impacts; however, academic research has continued to debate the possibility that today's youth, who has grown up immersed with technology, think and learn differently than prior generations. It has been suggested by some that technology could be conducive for learning (Prensky, 2010; Tapscott, 2009) while other research by Small and Vorgan (2008) has also suggested that technology could distract from learning. Researchers are questioning the effects of technology on learning and whether immersion in technology has affected brain development in youth (Goodwin, 2013; Greenfield, 2009; Keegan, 2012; Turner, 2015). Given the unknown effects of rapidly evolving technology and social media on student learning, more empirical research is needed on the approaches to learning of millennial students, which this study aims to explore.

Generational Characteristics

Howe and Strauss (2000) stated that each generation is shaped by its social environment, or collection of social events experienced by individuals in a common birth year. They hypothesized that these individuals develop commonly held beliefs and behaviors because of these shared social experiences. Popular press has used the term "millennial" to refer to a broad range of generational groups; however, this study focuses on the defined generational group of Howe and Strauss' (2000) millennials and Prensky's (2010) digital natives. For the purposes of this study, the researcher has chosen to use the term millennials to refer to this generational group.

According to the Pew Research Center, as of 2015 millennials were on track to become the nation's largest living generation (Fry, 2015). The Census Bureau reports that millennials represent more than one quarter of the nation's population (Williams, Medina, Medina, & Clifton, 2017). Today's youth represents a generation of students who have grown up immersed in technology, where computers, games, email, cell phones, text messaging, and the Internet have become a requisite part of their lives (Prensky, 2010), having learned to "multitask and parallel process with ease" (Small & Vorgan, 2008, p. 24). Howe and Strauss (2000) defined a generation as a peer group, born over a period of roughly the same time span, but built upon cultural experiences and historical events. For Prensky (2001a, 2010) and Howe and Strauss (2000), age seems to be the defining factor for generational grouping; however, some research suggests this generation is defined by exposure to, or experience with technology (Tapscott, 2009; Oblinger & Oblinger, 2005). It has been speculated by researchers that technology immersion of students has begun to define the fundamental way in which young adults communicate, socialize, and learn (Prensky, 2010; Howe & Strauss, 2000; Tapscott, 2009); however, others are skeptic about the true impacts of technology on learning and what researchers have proven empirically (Bennett, Maton, & Kervin, 2008; Helsper & Enyon, 2010; Guo, Dobson, & Petrina, 2008; Selwyn, 2009; Thompson, 2013). Other researchers speculate that age or technology alone does not adequately define if someone is part of the millennial generational grouping and surmise that research supports significant differences within cohorts of young adults in terms of their preferences, skills, and use of technologies (Buskirk-Cohen, Duncan, & Levicoff, 2016; Helsper & Enyon, 2010; Jones, Ramanau, Cross, & Healing, 2010).

Howe and Strauss' Millennials

Howe and Strauss (2000) defined a group of students based on those born between 1982 and 2000 as the "millennials." Millennials are described as political, environmental, ambitious, and more ethnically diverse than other generations before (Howe & Strauss, 2000). Additionally, millennials are demographically defined as confident, connected, and as being poised to be the most educated generation in American history (Goldman & Martin, 2016; Howe & Strauss, 2000). Furthermore, millennials have been labeled as active participants in society to an extent unlike any generation before and as being resistant to traditional leadership styles with a drive for collaborate learning (Howe & Strauss, 2000; Williams et al., 2017). Due to constantly evolving technology, millennials have large amounts of information at their fingertips and have become one of the most informed generations in history (Junginger, 2008; Small & Vorgan, 2008). Furthermore, McAlister (2009) argued that millennials can absorb information with speed and efficiency because of the environment they have grown up in. Elarm, Stratton, and Gibson (2007, p. 22) supported this by saying their hectic lives "have accustomed them to structuring time, working from schedules, and following rules." Howe and Strauss (2000, p. 5) described this generation as a group of "technology planners, community shapers, institution builders, and world leaders." As a connected generation, authors have described them as cooperative team players (Howe & Strauss, 2000).

Marc Prensky's Digital Natives

Prensky's (2001a, 2010) digital natives are described as a generation born after 1980, who has grown up immersed in technology and as a group who are adept at using technology to perform tasks, whether for entertainment or educational purposes. Prensky (2001a, 2010) described the digital natives as relying on technology and being confident in their ability to

acquire information instantaneously. Worley (2011) described them as having various electronic devices and as using the Internet as their primary source of news. Other characteristics used to describe digital natives have included focus on social issues, inclined to teamwork, achievement driven (Prensky, 2010), and as a group tending to multitask (Small & Vorgan, 2008). In contrast, those born prior to 1980 have been coined "digital immigrants," described as not possessing the same innate technological abilities as natives (Prensky, 2001a, 2001b, 2010). Common characteristics used to describe the digital immigrant are a lack of propensity to use the Internet for information searching and a preference for print documents as opposed to working digitally (Prensky, 2010). Prensky (2010) noted that digital immigrants may learn to use technologies but will still be unable to fully understand its use, likening this to the difference between learning a new language and being a native speaker.

Expanding on the assumption that there was a fundamental difference in the thinking of digital natives and immigrants, Prensky (2010, p. 2) claimed that instructors born prior to 1980 are the "biggest problem facing education today." Small and Vorgan (2008, p. 3) asserted that a consequence of early high-technological stimulation of the brain would lead to the beginning of a "deeply divided brain gap between younger and older minds." Turner (2015) further explains this as stating that the gap in the abilities of the student and the instructor has resulted in putting today's teaching styles in conflict with the technological proficiency of digital natives. Palfrey and Gasser (2008, p. 238) promoted the argument that "the educational establishment is utterly confused about what to do about the impact of technology on learning."

Neural plasticity. Some researchers and popular press are convinced that millennials have specific learning needs based on this exposure to technology; neural plasticity (Ebner, 1996) has been identified as an indicator of how the brain has been impacted by technologically

rich environments (Prensky, 2010; Small & Vorgan, 2008; Tapscott, 2009). Prensky (2001b) maintains that the digital immersion of the described digital natives has changed the way they think; asserting that technology has impacted how they process information. Neural plasticity refers to the process of training in specific areas that leads to the development or strengthening of the neural circuitry used in performing those skills, while those not used eventually degrade (Nelson, 1999; Small & Vorgan, 2008). Small and Vorgan (2008) likened the young brain to a new computer, with some basic programs pre-installed and plenty of hard drive space remaining for additional information storage. As the brain uses more and more memory, it creates shortcuts to access the new information. These shortcuts are believed to be a development of new neural pathways (Small & Vorgan, 2008).

Prensky (2001b, 2010) stated that the intensity and use of digital technologies would have effects on the development of the brain, resulting in superior visual skills, hand eye coordination, and the ability to switch between tasks. Researchers have speculated that repeated exposure to digital technologies may re-wire the brain by "developing neural circuitry that is customized for rapid and incisive spurts of directed attention," (Small & Vorgan, 2008, p. 21) while suppressing activity in the frontal lobe, an area of the brain used primarily for planning, abstract thinking, and perspective-taking and thus, causing neglect on the development of the temporal lobe and creating a generation of students unable to control impulses or think critically (Small & Vorgan, 2008). Greenfield (2009, p. 71) also cautions that immersion of technology in daily lives could be restricting the way student's think and read, resulting in the erosion of deep processing skills, further explaining "every medium develops some cognitive skills at the expense of others."

Multitasking. One of the characteristics commonly used in describing the millennial generation is that of a multitasker (Palfrey & Gasser, 2008; Teo, 2016; Kirschner & Bruyckere,

2017). Palfrey and Gasser (2008) report that multitasking involves both parallel processing, juggling activities such as reading and listening to music, and task switching - defined as rapidly toggling from one task to another. Researchers further explained this as someone capable of carrying out multiple tasks at once, each requiring cognition and/or information processing (Gazzaley and Rosen, 2016; Kirschner & Bruyckere, 2017). They concluded that when we say millennials are capable of multitasking, we are referring to task switching, which is the diversion of attention away from one task to another (Kirschnet & Bruyckere, 2017; Gazzaley & Rosen, 2016). Task switching involves dividing attention between tasks where each task competes with the other for a limited number of cognitive resources (Kirschnet & Bruyckere, 2017). Gazzaley and Rosen (2016) explained the difference in multi-tasking and task switching where humans make a choice to try to do two things at exactly the same time, such as talking on the phone while reading an email, or sometimes we choose to switch between tasks, such as writing a paper and then flipping over to an email account to quickly read through an email. Research suggests that multitasking costs time and attention, especially for cognitively challenging tasks, and impacts the accuracy of task completion (Cavanaugh , Giapponi, & Golden, 2016; Palfrey & Gasser, 2008; Gazzaley & Rosen, 2016; Kirschner & Bruyckere, 2017; Kirschner & Karpinski, 2010; Rosen, Carrier, & Cheever, 2013). Small and Vorgan (2008, p.18) referenced this process as continuous partial attention, where an individual "no longer has time to reflect, contemplate, or make thoughtful decisions." Furthermore, research has shown that Facebook and texting while completing educational tasks such as homework negatively predicted overall GPA (Junco & Cotten, 2012). Kirschner and Bruyckere (2017) also found that rapidly switching behavior, when compared to carrying out individual tasks, leads to poorer learning results and performance. Gazzaley and Rosen (2016) observed hundreds of young adult and university students studying

for a fifteen-minute time frame while in their natural working environment. Observations found that the typical student couldn't stay focused for more than three to five minutes (Gazzaley & Rosen, 2016). Ophir, Nass, and Wagner (2009) performed a study at Stanford University where they asked two separate groups, consisting of one heavy multitasking group and one light multitasking group, to perform tests that required them to focus and eliminate environmental distractions. For example, the study asked participants to identify whether letters were consonants or vowels and then switching to identifying whether numbers were odd or even. The heavy multitasking group was significantly slower at the exercise and performed worse on tests of task-switching abilities (Ophir et al., 2009). Researchers Gazzaley and Rosen (2016) stated the human brain does not have the infinite parallel processing resources needed to simultaneously receive and interpret all information exposure.

Technology and Social Media Usage

Technology has had a definite impact on the way millennials manage their daily lives, becoming increasingly dependent upon technology (Turner, 2015; Cavanaugh et al., 2016). The emergence of technology, specifically cell phones and the Internet, has placed information at students' fingertips, this becoming more apparent through the field of education in how we deliver curriculum with the creation of computer-based resources and learning activities across disciplines (Kirkwood & Price, 2005; Turner, 2015). According to Pearson (2015), 82% of high school students used smartphones regularly and approximately 49% used tablet devices. Of those surveyed by Pearson (2015), 54% of high school students wanted to see more mobile devices used in class with a majority of 86% expressing that tablets will change the way students learn in the future. It has been estimated that US adults and teenagers will check their mobile devices up to 150 times a day (Gazzaley & Rosen, 2016).

Worley (2011) stated that Facebook and other social media platforms have introduced a new way of developing and maintaining friendships as well as utilization of cell phones for both verbal and visual communications. A Standard University study found that for every hour youth spent on computers, traditional face-to-face interaction with others decreased by nearly thirty minutes (Small & Vorgan, 2008). Small and Vorgan (2008) expressed concern that as the brains of youth evolve and shift focus toward new technological skills, it would drift away from fundamental social skills, as simple as reading facial expressions and subtle gestures.

Technology's Impact on Learning Experiences

It has been speculated that the repeated exposure to technology has resulted in enhanced thinking skills in areas such as visual orientation, image interpretation, and mental mapping (Oblinger & Oblinger, 2005; Prensky, 2010; Turner, 2015; Teo, 2016). It has also been suggested that the exposure to technology has affected the millennial's educational preferences, noting the demand for instant access to information, lower tolerances for traditional lecture styles (Small & Vorgan, 2008) and the expectation that technology be an integral part of their education (Oblinger & Oblinger, 2005; Turner, 2015). Small and Vorgan (2008, p.26) noted that many students acknowledge that traditional lecture "seemed boring." Other research has also noted that contrary to the popular belief that the millennial generation are universally proficient in all technological tools, the range of technologies students use might be more limited than led to believe (Goldman & Martin, 2016; Montero-Fleta & Perez-Sabater, 2014; Thompson, 2013; Turner, 2015). While Prensky (2001a, 2001b, 2010) asserts that those born after 1980 are well adept with technology, there are still a growing number of millennials who are finding it challenging to transfer their technological abilities with daily tasks into an academically successful experience (Turner, 2015). Thompson's (2013) study showed that out of eight

categories of digital technology, those frequently used by students of the millennial generation were of rapid communication technology and web resources categories, including such tasks as commenting on Facebook, sending text messages, watching videos, and using the Internet to search for information. Additionally, a study from researcher Montero-Fleta and Perez-Sabater (2014) on the use of groupwork via wikis found that students also experienced difficulties in dealing with some technologies proficiently.

In contrast to arguments identifying the benefits of technology on learning and what it has brought to the educational realm, the point has also been made that technology can be a distraction that interferes with engagement in learning, rather than being a tool to enhance it or focus attention (Turner, 2015). It has been argued by some researchers that millennials suffer from short attention spans, often struggling to focus (Small & Vorgan, 2008); however, they are able to focus on a movie or video game. Therefore, it has been speculated that it is not the ability of the student to focus that has changed due to technology advances, but rather what they choose to focus their attention on (Prensky, 2001b; Turner, 2015).

McLuhan's Medium is the Message. Few researchers would deny that technological advances have provided opportunities for individuals and society as a whole, with digital media having increased potential for education through the use of instructional tools, student study tools, understanding of student learning, interactive simulation learning environments, and communication capabilities for students and instructors; however, researchers like Palfrey and Gasser (2008), question the implications this will have on learning. When Marshall McLuhan wrote *"The medium is the message"* in 1967, he was emphasizing the implications of new technology (or the medium) beyond the context of its current use (Euchner, 2016; McLuhan, 1964) and its role in shaping the way we think (Keegan, 2012). McLuhan (1964, p. 10) explained

technology as a "staple or natural resource, exactly as are coal and cotton and oil. Anybody will concede that society whose economy is dependent upon one or two major staples…is going to have some obvious social patterns of organization as a result." Carr (2010) explained McLuhan's theory as people's innate ability to get caught up in the content being delivered by a medium – news in the newspaper or music on the radio – and lose focus on the technology of the medium. McLuhan's theory of "the medium is the message" stresses that the content matters less than the medium itself in influencing how we think. While McLuhan's original message was related to cinema and its projected sensationalizing onto its viewers, his comments still apply to digital advancements of today (Carr, 2010). A modern example used in discussion of this theory was reading a book versus digital content. Like with all new technological advancements, there are disadvantages. Keegan (2012) proposed that reading printed text encourages individuals to reflect and to be introspective while digital content encourages fast, less analytical thinking. Kolikant (2010) found in interviews with young students that the Internet was believed to oversimplify school work, going back to the way in which students process textual information. Of those interviewed by Kolikant (2010), 20% explained their reasoning for believing students of today are worse learners than prior generations having to do with education having not adjusted to the world today. Herther (2011) suggested that digital content of the future will need to employ a wider range of media, using audio, video, and pictures rather than just text. This is the types of media currently being seen in the use of digital content in educational environments. Bob Stein, director of the Institute for the Future of the Book, predicted, "I think the whole idea of reading, the collection of many, many viewpoints linked to a single document and convenience as a form of expression will become critically important." (as cited in Herther, 2011, p. 46). Furthermore, Stein continued to say, "The real question isn't what medium is being

used, but to what extent the medium is used to empower creativity and thought and communication." (as cited in Herther 2011, p. 46). Within his discussion, Stein continued to question not whether we are encouraging reading, but whether we are encouraging others to ask questions. Think about the media used in prior generations to present. The days of dial phones and party lines when hearing someone's voice was an isolated incident have passed; however, Soroyan (2017) has speculated it was an early version of social media. Saroyan (2017) used the iPhone as a perfect example how technology has changed day to day lives. When Steve Jobs introduced the iPhone, he referred to it as a "revolutionary" technology, rather than simply a phone or gadget. Jobs viewed the iPhone technology as a way of life. The introduction of the iPhone affected communication with others (both audio and visual), connecting with the world, access to information and introduced such applications as Snapchat, Facebook, Twitter, and real time-access to news apps to stay connected with the world (Saroyan, 2017). Junco and Clem's (2015) research suggests that the use of digital textbooks could be a cause of a lack of engagement, finding a mean reading time of approximately seven hours over the course of a 16-week semester. Carr (2010) spoke of a scenario where a colleague shared her experience using a Kindle for reading, highlighting common issues of using digital books for reading. Carr's (2010) colleague discussed instances where she experienced restless eyes and numerous distractions causing her eyes to move around. Gazzaley and Rosen (2016) explain eye tracking studies show that when reading digital text, it is not read in the same way that a book is. The media used in education has continued to evolve year after year providing pros to access of information and tools to the cons of whether we are encouraging critical thinking. McLuhan's "the medium is the message" seems to have predicted some of the research currently taking place in the field of education and digital content.

Social Media and Learning

Social media in the millennial generation has become more and more popular and interactive in multi-faceted areas of their life from personal to educational. There are multiple forms of social media, including Facebook, Twitter, Instagram, blogs, and wikis. A characteristic often described when discussing millennials is the need to engage and connect with others (Howe & Strauss, 2000; Prensky, 2010; Williams et al., 2017). Social media has afforded a continuous connectivity with digital devices. Manafry and Gautschi (2011) caution that digital devices are creating a "social permeance," an expression used to convey how social activities are beginning to permeate our everyday lives, making it increasingly difficult to separate professional from personal. Further, they explain that daily tasks as mundane as grocery shopping are becoming opportunities for social interactions through text messages, tweets, and the sharing of GPS locations (commonly used in Facebook posts). Gazzaley and Rosen (2016) explained that users between 18 and 44 years old check Facebook more than 14 times per day, spending many hours a day on the site. This time spent on social networking sites is often broken up into short bursts whether it be reading, commenting, posting, or communicating with a large group at once (Gazzaley & Rosen, 2016). Researchers Paul, Baker, and Cochran (2012) proclaimed that faculty often use their personal experiences with a lack of student focus and engagement in the classroom to influence the beliefs of others that there is a negative correlation between grades and the time spent on technology devices during class. This has caused many faculty to ban the use of laptops and cell phones as classroom learning tools. In their research with business students, Paul et al. (2012) concluded there was a significant negative relationship between the use of online social networking sites and academic performance, through influence on attention spans. Kirschner and Karpinski (2010) also concluded that Facebook users reported

having a lower GPA and spending fewer hours studying; however, the time overall spent on the Internet between Facebook and non-Facebook users had no significant difference, indicating a difference in study strategies amongst the two groups. In their study, researchers Kirschner and Karpinski (2010) also concluded that Facebook users were more involved in extra-curricular activities, suggesting more extroverted personality traits. In contrast to this negative connotation to Facebook and academic performance, researcher Junco (2015) speculated that research may be beginning to suggest that these impacts are being mitigated by multi-tasking and could be affected by class rank. While Junco's (2015) research still concluded a negative relationship between Facebook usage and GPA, it seemed to affect Freshman, Sophomore, and Juniors more so than those with a Senior class ranking, suggesting this to be a result of the demands faced by students in educational environments and the importance of social connections during the transition from high school to college.

Attitudes Toward Thinking and Learning Survey (ATTLS)

Galotti et al. (1999) initially created the Attitudes Toward Thinking and Learning Survey (ATTLS) to predict individual differences in the way people acquire or process information and their approach to problem solving. Galotti et al (1999) labeled this survey as the "ways of knowing," which refers to the approaches used in evaluating and constructing knowledge. Learning styles are thought to be distinct from abilities and involve preferences in the use of one's abilities (Galotti et al., 1999).

In developing the ATTLS, Galotti et al. (1999) conducted a factor analysis study on four samples of participants with an initial 50 item survey. The researchers determined approximately 45 minutes to administer the survey would be too long and constructed a shortened version of the instrument. The condensed version was found to be highly correlated with the longer version and

nearly as reliable. A list of the 20 items on the ATTLS construct can be found in Appendix B. Upon completion of the ATTLS construct, Galotti et al. (1999) extracted two distinct factors: separate knowing and connected knowing.

Separate Knowing Subcategory

Separate knowing involves maintaining an objective, analytical evaluation of any argument or point of view. Separate knowers are often known for taking an adversarial tone in debating critical thoughts (Galotti et al., 1999; Galotti, 2001). Separate knowers attempt to exclude their own feelings and beliefs when evaluating a situation (Galotti et al., 1999; Galotti, 2001). The separate knower approaches any situation by initially analyzing the situation in an objective manner, and then attempting to understand another's point of view on the issue (Marrs & Benton, 2009). This form of educational pedagogy typically connects more with traditional lectures, in the sense that there is a stress on knowledge of facts and processes, rather than engagement with the ideas (Mulhall & Gunstone, 2012).

Connected Knowing Subcategory

Connected knowers take the position of placing themselves in alliance with another's position, even when they disagree. In contrast to the separate knower, connected knowers look at understanding a point of view, why it makes sense, and how it might be correct, rather than evaluating how it is right or wrong (Galotti et al., 1999; Galotti, 2001). In other words, the connected knower will approach a situation by initially understanding one's point of view, and then stepping back to analyze and evaluate. A professor attempting to implement a connected knowing based lecture would integrate the use of his or her own experiences and to other lessons the student has learned. This allows the relation of the current subject matter back to common knowledge, experience, and prior lessons. The idea of inquiry-based pedagogy supports the

connected knowing approach to education. The inquiry-based pedagogy is one that takes the student's ideas and observations and makes them the center of the learning experiences. Educators play a role in this pedagogy where they facilitate and encourage asking questions and coming to understanding through challenging and testing (Marrs & Benton, 2009).

Summary

Chapter two is a review of literature and included a definition of generational theory for this study using Howe and Strauss millennials and Prensky's digital natives. Furthermore, it explained how immersive technology is believed to affect the way in which students of today facilitate learning. While researchers have stated that the effects of technology and social media engagement could be of benefit to the student, some research has also suggested that technology immersion in daily life has served as a distraction rather than a tool to improve learning efficacy, which may have been predicted many years ago when Marshall McLuhan wrote "the medium is the message." As course development and technology continue to overlap and evolve, researchers are questioning the affects it has on the approach of learning, making it imperative to further understand the preferences for learning among today's generation. Larry Rosen has been studying the effects of technology and social networking for the past decade, finding a constant increase in how often people are checking in with devices, young adults often checking in with a device every 15 minutes (Gazzaley & Rosen, 2016). Gazzley and Rosen (2016, p. 112) further explained the differences over time as "Where we used to read, we now skim. Where we used to write, we now use shortened fragments to convey our thoughts. Write a letter? It's much easier to zip off a brief text or an email message." Gazzley and Rosen continued with "When Twitter first appeared, we used to shake our head at the impossibility of putting our thoughts into only 140 characters. Now this appears normal and fits into our task-switching lifestyle."

CHAPTER III

METHODOLOGY

General Approach

The purpose of this study is to describe the relationship among technology and social media usage on the identified connected knowing and separate knowing categories of the Attitudes Toward Thinking and Learning Survey (ATTLS). To further explore the participants approaches to learning, this study explored how the participants described their learning experiences. Data for this study was obtained through an online survey. Survey research is used to determine and report, which involves collecting numerical data to test hypotheses (Gay, Mills, & Airasian, 2009). This was a quantitative survey study with obtained qualitative data through open response survey questions.

The researcher collected questionnaire data from business college students in their freshman year, both male and female, between the ages of 18 and 33 during the Fall 2013 and Fall 2014 semesters. Students participating in the survey were mostly traditional students, who had followed a path directly out of high school to college. Participants completed one questionnaire that contained three sections: a demographic section collecting information on the basic characteristics of the participants, information regarding their high school environment, and technology and social media usage; expectations of college based on self-identified ratings; and the Attitudes Toward Thinking and Learning Survey (ATTLS). All personal information was removed from the survey data and designated by a control number for anonymity. This was communicated to the participants for them to feel more comfortable with their privacy and

encouragement of honest responses. The survey was administered online through the university's Qualtrics website and participants gave electronic consent to participate.

Descriptive statistics are used to organize and describe characteristics of a collection of data and include the mean, standard deviation, median, mode, and frequency of responses in this data set (Salkind, 2008; Urdan, 2005; Steinberg, 2011). Demographic information and identified usage of technology and social media in the data collected from the questionnaire was used in the descriptive statistics for this study. In addition, this study used survey responses to technology and social media usage and the identified groups in the ATTLS to define the correlating relationship, a measuring of the extent of interdependence of variables. Spearman correlation was chosen for statistical analysis in this study due to the Likert scale responses on the ATTLS (Field, 2013; Urdan, 2005).

The collected participant data also included responses to open ended questions. These data were analyzed using summative content analysis methods, regarded as a flexible method for analyzing text data. Content analysis focuses attention to contextual meaning of text in open-ended survey responses for categorizing text with similar meanings (Creswell, 2009; Hsieh & Shannon, 2005). This study will use summative content analysis methods for exploring the usage of words within the participant responses and interpretations of usage.

Context of the Study

This study was conducted within a university setting which houses a School of Business accredited since 1931 and recognized by U.S. News and World Report as a top 30 undergraduate business school in 2017 and several years prior. The freshman seminar course required by all business college students used for participation in data collection for this study was intended to introduce incoming freshman to professional and ethical expectations, university resources,

academic integrity, and the academic advising process. This course was intended to ease the transition of students from high school to college and facilitate their college experience. This course is offered only in the Fall semester of each academic year.

Population and Sample

A population represents all of the members of a certain group (Urdan, 2005). In this study, the population is the university's business college first-semester freshman enrollment. The researcher received the population data from the university's Office of Institutional Research and common data university website. The population in this study included a subset of all freshman students in the Fall 2013 and Fall 2014 semesters who were enrolled in a first-semester freshman seminar course. Data for all business college freshmen can be found in Table 2. The Fall 2013 and Fall 2014 population data for this study is summarized in Table 3. The subset of the population used in this study was representative of the overall business freshman population.

The study sample is a subset of this larger population (Urdan, 2005). The sample for this study was a convenience sample to the researcher. The subjects for this study were between the ages of 18 and 33 and were first-semester freshmen students enrolled in a required freshman seminar course. Of the 1,158 sent the link in Fall 2013, 65 completed responses were received, providing a response rate of 5.6%. Of the 1,143 sent the link in Fall 2014, 71 completed responses were received, providing a response rate of 6.2%. Overall, 136 completed responses were received, providing a response rate of 5.9%. The Fall 2013 and Fall 2014 sample data for the study is summarized in Table 4.

Table 2

Business College Freshmen Population Data

	Fall 2013	Fall 2014	Total	% of Total
Gender				
Female	473	513	986	33.8
Male	929	998	1927	66.2
Total	**1402**	**1511**	**2913**	**100.0**
Ethnicity				
African American	43	47	90	3.1
Caucasian/White	1104	1204	2308	79.2
Native American	14	19	33	1.1
Asian	31	33	64	2.2
Hispanic/Latino	96	95	191	6.6
Multi-racial	42	39	81	2.8
Other	67	67	134	4.6
Unknown	5	7	12	0.4
College Business Major				
Accounting	108	107	215	7.4
Economics	227	224	451	15.5
Finance	90	127	217	7.5
General Business	101	21	122	4.2
Information Systems	18	19	37	1.3
Management	61	74	135	8.1
Marketing	141	193	334	11.5
Retail	8	4	12	0.4
Supply Chain Management	16	23	39	1.4
International Business	87	125	212	7.3
Undeclared	514	568	1082	37.1
Other	31	26	57	2.0

Table 3

First-Semester Business Freshmen Subset Population Data

	Fall 2013	Fall 2014	Total	% of Total
Gender				
Female	405	376	781	33.9
Male	753	767	1520	66.1
Total	**1,158**	**1,143**	**2,301**	**100.0**

Table 4

First-Semester Business Freshmen Sample Data

	Fall 2013	Fall 2014	Total	% of Total
Gender				
Female	24	37	61	44.8
Male	41	34	75	55.1
Total	**65**	**71**	**136**	**100.0**
Ethnicity				
African American	4	1	5	3.7
Caucasian/White	54	63	117	86.0
Native American	1	1	2	1.5
Asian	2	0	2	1.5
Hispanic/Latino	4	4	8	5.9
Multi-racial	0	0	0	0.0
Other	0	1	1	0.7
Unknown	0	1	1	0.7
College Business Major				
Accounting	7	6	13	9.6
Economics	1	5	6	4.4
Finance	10	10	20	14.7
General Business	13	11	24	17.6
Information Systems	0	1	1	0.7
Management	2	10	12	8.8
Marketing	17	10	27	19.9
Retail	0	0	0	0.0
Supply Chain Management	1	1	2	1.5
International Business	3	6	9	6.6
Undeclared	11	10	21	15.4
Not Reported	0	1	1	0.7

Instrumentation

The instrumentation used for this study was a three-section questionnaire including a demographic section collecting information on the basic characteristics of the participants, information regarding their high school environment, and technology and social media usage; expectations of college based on self-identified ratings; and the Attitudes Toward Thinking and

Learning Survey (ATTLS). The instrument was administered online through Qualtrics as one continuous survey. The full questionnaire for this study can be found in Appendices A and B.

Demographic Response Sheet, Technology, and Social Media Usage Section

The first 14 questions of the questionnaire were demographic in nature and included gender, age, major, race, high school information and self-identified current learning strategies and the connection to the educational goals of the student. The full demographic questionnaire can be found in Appendix A.

The next set of questions, 15-18, included four questions concerning technology usage. This was followed by six questions, 19-27, about social media usage. The technology and social media usage portion of the questionnaire was based on prior research from Thompson (2013) and Rosen, Whaling, Carrier, Cheever, and Rokkum (2013) and personal experience with the use of devices by students in the classroom. The full technology and social media usage questionnaire section can be viewed in Appendix A.

Expectations of College Section

In the third section of the survey, participants answered questions regarding their expectations of college in terms of instructional strategies used in the classroom, satisfaction with college courses, classroom experiences, and what the participant enjoyed most about college. This section of the instrumentation included four open response questions. The open response questions for this study can be viewed in Appendix A.

Attitudes Toward Thinking and Learning (ATTLS) Survey

In the final section of the survey, participants entered responses to the Attitudes Toward Thinking and Learning Survey (ATTLS), a 20-item instrument that measures the individual's ways of knowing and consists of two factors, each consisting of a subset of 10 statements

(Galotti et al., 1999). One subset of 10 is identified as Connected Knowing (CK) indicating an empathic way of knowing, explained as an understanding of another's point of view. The second subset of 10 is identified as Separate Knowing (SK) indicating an attitude primarily characterized by its sense of detachment and objectivity (Galotti et al., 1999). The original instrument consisted of 50 items and was reduced to 20 items following factor analysis with a 0.45 for factor loadings. The ATTLS responses are on a 7-point Likert scale ranging from Strongly Agree to Strong Disagree. To score the ATTLS assessment, the responses were tallied for each of the 10 question subsets to determine a participant score for each the CK and SK categories. For either category, a range between 0 and 70 could be obtained. Content validity for ATTLS was established through factor analysis and field testing in a study of 383 undergraduate students. As reported by Galotti et al. (1999), reliability for ATTLS was established by measuring the internal consistency with a coefficient alpha of 0.83 for the CK subscale and 0.76 for the SK subscale. In this study, the coefficient alpha for the CK subscale was 0.94 and 0.87 for the SK subscale. Field (2006) identified Cronbach's coefficient alpha above .70 as a good indicator of a scale's internal consistency. With alphas of .83 and .76, the ATTLS demonstrates good internal consistency. The full 20-item ATTLS instrument can be viewed in Appendix B.

Procedures

Participants from the university who were enrolled in the business college and enrolled in the freshmen seminar course were asked to participate in a study determining the relationship of social media and rapidly evolving technology on approaches to learning. The Fall 2013 semester of this course had 55 sections, four of which were honors courses. It was not identified in the survey who was or was not an honors student. A two-week time frame was established for collecting the data needed to accommodate the study's timeline for the Fall 2013 semester. When

insufficient responses were received, additional data collection took place in the Fall 2014 semester. The Fall 2014 semester of this course had 60 sections, four of which were honors courses. It was not identified in the survey who was or was not an honor student. The freshman seminar course was offered once a year to incoming freshmen. The researcher used the next available semester to increase the participant response rate. Responses from both semesters were combined for analysis.

Upon receiving IRB approval, the survey was delivered to the participants as an online survey via Qualtrics. Participants were initially presented with an online consent to study form, which can be viewed in full in Appendix C. With the assistant dean's approval, the director of undergraduate programs at the university sent the survey link directly to the students enrolled in the freshmen seminar course. The instructors for the course knew of the survey but did not have the link or any interaction with the survey. Appendix D details instructions given to the students. When the researcher downloaded responses from Qualtrics, a control number was assigned to each student. Email addresses were removed in the process and only used later to determine the random recipient of a gift card for participation. In an attempt to increase the study's participation rate, a follow up reminder email was sent to the students by the undergraduate programs director. Students were asked to volunteer an email address for future contact to follow up and be entered into a drawing for a gift card. This personal contact information was removed from all survey responses to maintain anonymity.

Data Analysis

Data analysis consisted of descriptive statistics of the group to construct a profile of the participants demographics, self-identified technology and social media usage, and ways of knowing approach. Spearman correlation was performed to determine if there was a relationship

among the identified approaches to learning and the frequency of technology and social media usage. Spearman correlation was chosen for statistical analysis in this study due to the Likert scale response on the ATTLS (Field, 2013; Urdan, 2005). A reliability test was performed using coefficient alpha for the ATTLS construct in this study setting.

The open-ended responses were listed by question. After multiple readings and review of these responses, the researcher used summative content analysis (Elo & Kyngas, 2007; Hsieh & Shannon, 2005) to identify key phrases and each response was coded into themes. This process was also referred to as coding by Creswell (2009). A summative approach starts with identifying and quantifying content in the text with the purpose of understanding contextual use (Creswell, 2009; Hsieh & Shannon, 2005). By choosing an inductive approach, the researcher identified themes while reviewing responses. Once themes were identified, the researcher read through them again to group them under higher order headings to reduce the number of categories into similar categories. The researcher then re-read the participants' responses to code them into the identified themes. Elo and Kyngas (2007) described this as creating categories to increase understanding and provide a means of interpretation. A latent summative approach goes beyond the reporting of word frequencies and focuses on discovering underlying meanings (Hsieh & Shannon, 2005). In this study, rather than counting frequencies, the themes were compared across questions and similarities were noted to gain further understanding of the underlying contexts. Themes were further explained using pertinent quotes given by the participants.

Using the results of these analyses, determined relationships might point to areas of future study for more effective identification of the distinctive approaches to learning of students of the 21st century and to promote increased awareness of methods to improve student learning outcomes.

Handling Missing Data

The researcher reviewed the cases missing to look for any patterns in missing information. During this review, no patterns emerged from the missing data, appearing to be at random. These cases were eliminated from data analysis due to the nature of the survey and not being able to score the information for those cases. Non-respondents were not followed-up with due to anomality of responses. The number of missing cases are reported in the findings in Chapter 4.

Summary

A survey with three sections was administered to students in their first semester of college courses: a demographic information survey collecting information on the basic characteristics of the participants, information regarding their high school environment, and technology and social media usage; expectations of college based on self-identified ratings; and Attitudes Toward Thinking and Learning Survey (ATTLS) in the Oklahoma State University Qualtrics environment. The research project and privacy were explained to all participants at the beginning of this survey, prior to agreeing to participate. Demographic data was collected on the following variables: gender, age, ethnic background, international student status, country of legal residency, traditional or non-traditional student, part-time or full-time enrollment status, current college major, and a self-identified rating of technological skill. Descriptive statistics, including the use of frequencies, were used to summarize the data to describe the participants in the study.

CHAPTER IV

FINDINGS

The purpose of this study was to identify the approaches to learning of the millennial generation and to describe the student's perspective on the relationship that social media and technology has on individual approaches to learning. More specifically, 136 students were surveyed to identify the demographic profile of the generational group who are business freshman students currently taking collegiate level courses. This study explores the lack of thorough understanding of the relationship between age, role of social media and technology usage, and the student's approach to learning.

Research Question 1: What is the demographic profile of millennial students enrolled in a freshman seminar course?

Survey questions 1-14 from Appendix A were used to answer research question one. Out of the 2,301 participants invited to participate in the study, a total of 136 responses were received. This resulted in a 6% response rate. The mean age of respondents was 19.38 (SD = 0.52) years. Of the sample, approximately 57% were male and 43% were female. The sample was made up of two international students, 132 domestic students, and two who did not report their international status. In this study sample, 131 students were identified as full-time enrollment, with 4 part-time, and 1 not reported. To get a better overall understanding of the participants' perceived technological abilities, survey question nine asked users to identify their perceived level of technological skill with Novice (know basic computer functions), Fairly Skilled (know how to do most things skillfully), or Power User (Can work with advanced

software and hardware tuning). Descriptions were provided to the student and can be viewed in Appendix A. Tables 4 and 5 provide a full demographic profile of the respondents.

Table 5

Demographics of Sample Data (n = 136)

	n	**%**
Gender		
Male	78	57.4
Female	58	42.6
Age		
18	84	61.8
19	47	34.6
20	2	1.5
Not Reported	3	2.2
Traditional/Non-Traditional		
Traditional	131	96.3
Non-Traditional	4	2.9
Not Reported	1	0.7
Self-Reported Technical Skill		
Novice	25	18.4
Fairly Skilled	105	77.2
Power User	4	2.9
Not Reported	2	1.5

In addition to the demographic information summarized in Tables 4 and 5, the participants were asked about their high school experiences to get a better understanding of transitional experiences between high school and college that could have influenced their approaches to learning. Survey question ten asked the students if they participated in a normal or block scheduling system while in high school. A typical normal high school schedule would consist of six or seven, 50-minute classes throughout the day. A block schedule in high school would consist of fewer classes per day, with longer class times (typically 90 minutes). Of the 135

responses, approximately 29% (39) reported having a block schedule. Of the same 135 responses, approximately 83% (112) reported having never participated in an online course prior to college. Full high school profile information can be found in Table 6.

Table 6

High School Experience Profile (n= 136)

	n	**%**
Class Schedule		
Normal	96	70.6
Block	39	28.7
Not Reported	1	0.7
Online Course (Prior to College)		
Yes	23	16.9
No	112	82.4
Not Reported	1	0.7
Career Technical Classes		
Yes	43	31.6
No	92	67.6
Not Reported	1	0.7

Participants in the survey were asked to identify any instructional strategies that they experienced while in high school. Of the 136 responses, it was identified that the most common instructional strategy experienced was the traditional PowerPoint lecture (32%), followed by reading based discussion (29%). Figure 2 shows a full report of responses from the participants.

Survey question 14 asked participants to rate on a scale of 1-5, with 1 being "My strategies do not usually work for me" and 5 being "My strategies almost always work well for me," how well they thought their current learning strategies were meeting their educational goals. Of the 135 responses, 79 (58.5%) felt their learning strategies sometimes worked well for

them, with only 32 (23.7%) confidently stating their strategies almost always work well for them. Figure 3 provides full detail of the participant responses.

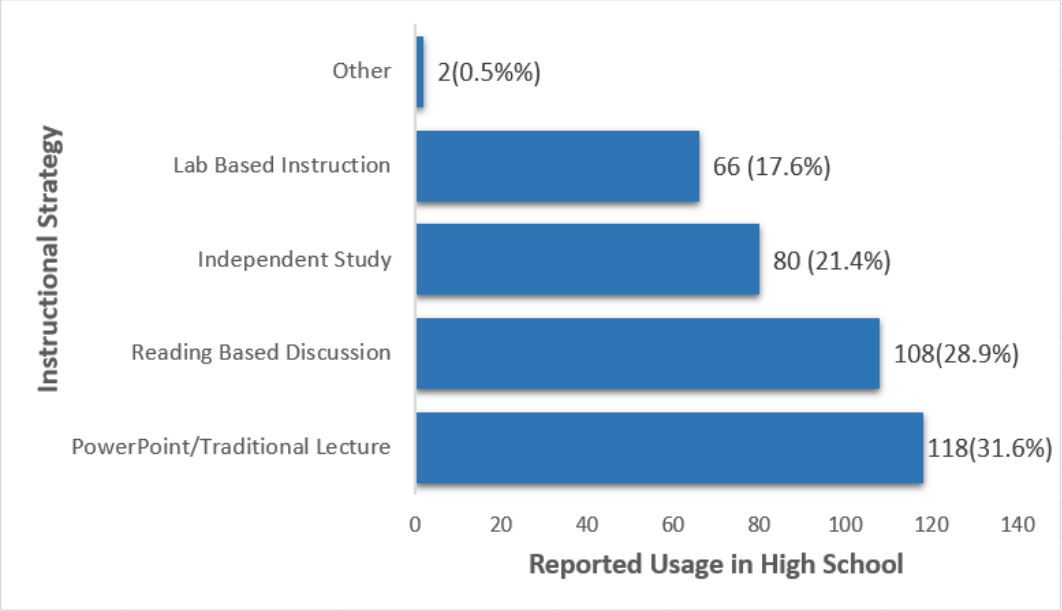

Figure 2. Reported instructional strategy experiences in high school.

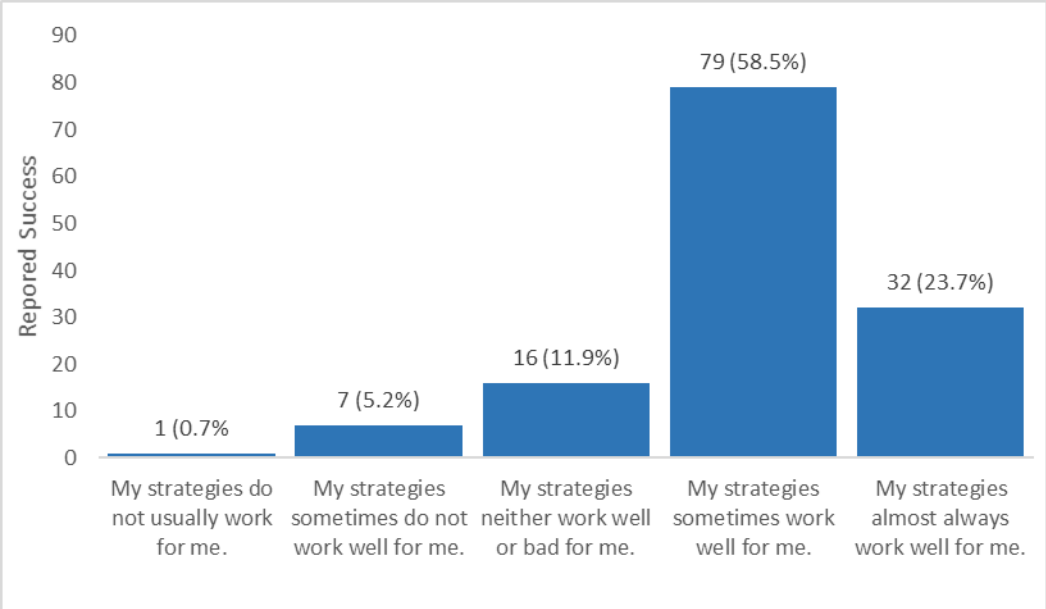

Figure 3. Reported success of the current learning strategies to meet educational goals

Research Question 2: What are the self-identified ways of knowing as measured by ATTLS?

Survey questions 1-20 from Appendix B were used to answer research question 2. The Attitudes Toward Thinking and Learning Survey instrument is detailed in Chapter 2. The survey categorizes participants into one of two categories, connected knower (CK) and separate knower (SK), based on their Likert scale responses. In this study, the coefficient alpha for the CK subscale was 0.94 and 0.87 for the SK subscale.

After removal of any participant who did not respond to all 20 items on the ATTLS, there were 130 completed responses remaining for analysis. Of the 130 completed responses, 122 (83.1%) were identified as the connected knower category. Table 7 provides more detail on the breakdown of both categories, including the mean and range of scores.

Table 7

Attitudes Toward Thinking and Learning Survey (ATTLS) Sample Results (n=130)

ATTLS Category	**n**	**%**	**Mean**	**Min**	**Max**
Connected Knower (CK)	108	83.1	52.5	10	70
Separate Knower (SK)	22	16.9	49.5	18	64
Total	130	100	51.0	10	70

The ATTLS is broken up into two subsets of ten questions with a combined total of twenty questions. The first ten items reflect traits of the connected knower while the second subset reflects traits of the separate knower. In review of the responses of the 108 identified connected knowers, it is important to note that on the questions reflecting separate knower traits, the highest modes of five were for items 13, “I try to listen to other people’s positions with a critical eye ,“, and 17, “I have certain criteria I use in evaluating arguments.“ indicating they

"Slightly Agree." The highest modes for questions reflecting traits of the connected knower, with a mode of 7, were items 3, "I tend to put myself in other people's shoes when discussing controversial issues, to see why they think they way they do.", 7, "I always am interested in knowing why people say and believe the things they do", 8, "I enjoy hearing the opinions of people who come from backgrounds different from mine – it helps me understand how the same things can be seen in such different ways", and 10, "I like to understand where other people are coming from, what experiences have left them to feel the way they do." indicating they "Strongly Agree." The median, modes, and range values for the 20 questions in the ATTLS for the connected knower group are provided in Table 8.

In review of the responses of the 22 identified separate knowers, it is important to note that on the questions reflecting connected knower traits, the highest modes of six were for items 9, "The most important part of my education has been learning to understand people who are very different from me", and 10, "I like to understand where other people are coming from, what experiences have led them to feel the way they do." indicating they "Somewhat Agree." The highest reported mode of seven for questions reflecting the separate knower traits was item 19, "I value the use of logic and reason over the incorporations of my own concerns when solving problems." indicating they "Strongly Agree." The median, modes, and range values for the 20 questions in the ATTLS for the separate knower group are provided in Table 9.

Table 8

Connected Knower ATTLS Subcategory Item Breakdown (n=108)

ATTLS Category/Item Number	**Median**	**Mode**	**Min**	**Max**	**Range**
CK Item 1	5.00	5.00	1.00	7.00	6.00
CK Item 2	5.00	5.00	1.00	7.00	6.00
CK Item 3	5.00	7.00	1.00	7.00	6.00
CK Item 4	5.00	5.00	1.00	7.00	6.00
CK Item 5	5.00	4.00	1.00	7.00	6.00
CK Item 6	6.00	6.00	1.00	7.00	6.00
CK Item 7	6.00	7.00	1.00	7.00	6.00
CK Item 8	6.00	7.00	1.00	7.00	6.00
CK Item 9	5.00	4.00	1.00	7.00	6.00
CK Item 10	6.00	7.00	1.00	7.00	6.00
SK Item 11	4.00	4.00	1.00	7.00	6.00
SK Item 12	4.00	4.00	1.00	7.00	6.00
SK Item 13	5.00	5.00	1.00	7.00	6.00
SK Item 14	4.00	4.00	1.00	7.00	6.00
SK Item 15	4.00	4.00	1.00	7.00	6.00
SK Item 16	4.00	4.00	1.00	7.00	6.00
SK Item 17	4.00	5.00	1.00	7.00	6.00
SK Item 18	4.00	4.00	1.00	7.00	6.00
SK Item 19	5.00	4.00	1.00	7.00	6.00
SK Item 20	4.00	4.00	1.00	7.00	6.00

Note. The scale for each question was between 1 – Strong Disagree to 7 – Strongly Agree. CK = Connected Knower, SK = Separate Knower

Table 9

Separate Knower ATTLS Subcategory Item Breakdown (n=22)

ATTLS Category/Item Number		**Median**	**Mode**	**Min**	**Max**	**Range**
CK	Item 1	4.00	4.00	1.00	6.00	5.00
CK	Item 2	4.00	4.00	1.00	6.00	5.00
CK	Item 3	4.00	4.00	1.00	7.00	6.00
CK	Item 4	4.00	4.00	2.00	6.00	4.00
CK	Item 5	4.00	3.00	2.00	6.00	4.00
CK	Item 6	4.00	4.00	1.00	7.00	6.00
CK	Item 7	5.00	5.00	1.00	7.00	6.00
CK	Item 8	5.00	5.00	1.00	7.00	6.00
CK	Item 9	5.00	6.00	1.00	7.00	6.00
CK	Item 10	5.00	6.00	1.00	7.00	6.00
SK	Item 11	5.50	6.00	1.00	7.00	6.00
SK	Item 12	5.00	5.00	1.00	7.00	6.00
SK	Item 13	5.00	5.00	1.00	7.00	6.00
SK	Item 14	5.00	5.00	2.00	7.00	5.00
SK	Item 15	5.00	6.00	2.00	7.00	5.00
SK	Item 16	5.00	5.00	2.00	7.00	5.00
SK	Item 17	5.00	5.00	2.00	6.00	4.00
SK	Item 18	5.00	5.00	1.00	7.00	6.00
SK	Item 19	5.50	7.00	1.00	7.00	6.00
SK	Item 20	5.00	5.00	3.00	7.00	4.00

Note. The scale for each question was between 1 – Strong Disagree to 7 – Strongly Agree. CK = Connected Knower, SK = Separate Knower

Research Question 3: What is the relationship between technology usage and the separate knowing and connected knowing categories of ATTLS?

Survey questions 15-18 from Appendix A were used to answer research question three. Participants were asked to identify their frequency of usage with specific technologies for learning, how important certain educational technologies were to their learning, and how often these same educational technologies were experienced in their collegiate classroom.

Profile of Technology Usage

To compare the overall frequency of technology usage, the average reported frequencies were calculated and used to determine an overall correlation. This average was calculated by taking the reported frequencies of technology usage and dividing by the total number of items in the survey section. Responses resulted in 129 completed items with a mean of 2.88 (SD = 0.62).

Survey question 15 asked participants to identify their frequency of usage of the given technologies on a scale of 1 (Once Daily) to 5 (Never Use). Items "search for information with an iPad," "comment on a blog," and "read an e-book" had the highest median of 5 (Range = 4), indicating that fewer students are using these technologies. The median, mode, and range of the responses were calculated and shown in Table 10. Based on the percentage of frequencies, the technology identified as the most frequently used was checking school email (at 89.7%), followed by searching for information on the Internet using a device other than a phone or iPad (at 83.8%). Detailed frequencies for each of the technologies given can be found in Table 11.

In addition to technology usage, survey participants were asked to the rate the importance of a specific set of technologies on a scale of 1 (Crucial) to 5 (Not Used). To compare the overall reported importance of technology, the average reported importance score was calculated and used to determine an overall correlation. This average was calculated by taking the reported importance of technology usage and dividing by the total number of items in the survey section. Responses resulted in 129 completed items with a mean of 1.91 (SD = 0.62). The iPad had the highest median at 3.00 (Range=4), indicating that few students feel the use of an iPad like tablet was as important to their classroom learning. The median, mode and range values for these responses were calculated and can be found in Table 12. Based on the completed responses, students felt the calculator (at 70.6%) and a Learning Management System (at 66.9%) were

much more beneficial to their learning. Table 13 details the percentages of frequencies for reported technology importance ratings.

Table 10

Median, Mode, and Range for Reported Technology Usage for Learning

Technology Usage	**Median**	**Mode**	**Min**	**Max**	**Range**	**n**
Search for information on a smartphone	1.00	1.00	1.00	5.00	4.00	135
Use apps on smartphone or iPad	1.00	1.00	1.00	5.00	4.00	135
Search for information on the Internet using any device other than phone or iPad	1.00	1.00	1.00	5.00	4.00	134
Check your school email	1.00	1.00	1.00	3.00	2.00	135
Read a long, detailed webpage	3.00	3.00	1.00	5.00	4.00	135
Play a strategy game on a smartphone or iPad	3.00	3.00	1.00	5.00	4.00	134
Read a blog	4.00	5.00	1.00	5.00	4.00	133
Play a strategy game on a computer	4.00	4.00	1.00	5.00	4.00	135
Search for information with an iPad	5.00	5.00	1.00	5.00	4.00	134
Comment on a blog	5.00	5.00	1.00	5.00	4.00	133
Read on e-book	5.00	5.00	1.00	5.00	4.00	128

Note. The low median and mode values reported are a result of higher usage.
The scale used for participant reporting was 1 – Once Daily to 5 – Never Use.

Table 11

Percentage of Frequencies for Technology Usage for Learning (n=136)

(Highest Percentage is shown in bold font)

Technology	**Once Daily**	**Bi-Weekly**	**Once Weekly**	**Once Monthly**	**Never Use**	**Not Reported**
Check your school email	**89.7**	5.9	2.9	0.0	0.0	1.5
Search for information on the Internet using any device other than phone or iPad	**83.8**	8.8	4.4	0.0	1.5	1.5
Search for information on a smartphone	**77.9**	11.1	8.1	0.7	1.5	0.7
Use apps on smartphone or iPad	**71.3**	13.2	6.6	2.2	5.9	0.7
Comment on a blog	5.1	4.4	2.2	16.9	**69.1**	2.2
Read on e-book	5.1	6.6	7.4	19.9	**59.6**	1.5
Search for information with an iPad	7.4	12.5	7.4	12.5	**58.8**	1.5
Play a strategy game on a computer	10.3	11.0	12.5	18.4	**47.1**	0.7
Read a blog	11.0	14.7	19.1	20.6	**33.8**	1.5
Play a strategy game on a smartphone or iPad	23.5	14.7	14.7	19.1	**27.2**	0.7
Read a long, detailed webpage	13.2	15.4	**25.7**	21.3	22.1	2.2

Table 12

Median, Mode and Range for Reported Importance of Technology in Learning

Technology Importance	**Median**	**Mode**	**Min**	**Max**	**Range**	**n**
Calculator	1.00	1.00	1.00	4.00	3.00	135
Laptop Computer	1.00	1.00	1.00	5.00	4.00	135
Learning Management System (LMS)	1.00	1.00	1.00	5.00	4.00	135
Overhead Projector	2.00	2.00	1.00	5.00	4.00	135
Blackboard Collaborate	2.00	1.00	1.00	5.00	4.00	135
Smartphone	2.00	1.00	1.00	5.00	4.00	135
iPad	3.00	2.00	1.00	5.00	4.00	135

Note. The low median and mode values reported are a result of higher rated importance. The scale used for participant reporting was 1 – Crucial to 5 – Not Used.

Table 13

Percentage of Frequencies for Importance of Technology in Learning (n=136)

(Highest Percentage is shown in bold font)

Technology	**Crucial**	**Sometimes Useful**	**Rarely Useful**	**Not Necessary**	**Not Used**	**Not Reported**
Calculator	**70.6**	23.5	4.4	0.7	0.0	0.7
Learning Management System (LMS)	**66.9**	21.3	6.6	2.2	2.2	0.7
Laptop Computer	**52.9**	34.6	7.4	3.7	0.7	0.7
Blackboard Collaborate	**48.5**	30.1	1.7	5.9	2.9	0.7
Overhead Projector	41.2	**43.4**	11.0	2.2	1.5	0.7
Smartphone	**43.4**	27.9	15.4	9.6	2.9	0.7
iPad	8.1	**25.7**	16.2	23.5	25.0	0.7

In addition to the previous ratings of importance, survey question 17 asked participants to rate how frequently they experience the same technologies being used in the classroom by their professors with ratings between 1 (Every Class) and 5 (Not Used). The median, mode, and range

values were calculated and shown in Table 14. The highest reported median of 4 (Range = 4) were for the iPad and smartphone, indicating that these devices are rarely used in classrooms for learning. Of the 136 responses, the highest rated technologies currently being used in the classrooms were overhead projectors (at 73.5%) and the Learning Management System (at 55.9%). Table 15 provides the full percentage of frequencies reported for all specified technologies.

Table 14

Median, Mode, and Range Values for Reported Technology Used by Professors in the Classroom

Technology Importance	**Median**	**Mode**	**Min**	**Max**	**Range**	**n**
Overhead Projector	1.00	1.00	1.00	5.00	4.00	135
Laptop Computer	1.00	1.00	1.00	5.00	4.00	133
Learning Management System (LMS)	1.00	1.00	1.00	5.00	4.00	134
Calculator	2.00	1.00	1.00	5.00	4.00	135
Blackboard Collaborate	2.00	1.00	1.00	5.00	4.00	135
Smartphone	4.00	5.00	1.00	5.00	4.00	135
iPad	4.00	5.00	1.00	5.00	4.00	133

Note. The low median and mode values reported are a result of higher rated importance. The scale used for participant reporting was 1 – Every Class to 5 – Not Used.

Table 15

Percentage of Frequencies for Technology Usage by Professors in the Classroom (n=136)

(Highest Percentage is shown in bold font)

Technology	**Every Class**	**Once a Week**	**Once a Month**	**Rarely**	**Not Used**	**Not Reported**
Overhead Projector	**73.5**	16.2	2.2	2.2	5.1	0.7
Learning Management System (LMS)	**55.9**	26.5	9.6	3.7	2.9	1.5
Laptop Computer	**50.0**	28.7	7.4	5.9	5.9	2.2
Calculator	**48.5**	29.4	5.9	8.1	7.4	0.7
iPad	4.4	13.2	10.3	23.5	**46.3**	2.2
Blackboard Collaborate	**45.6**	31.6	5.9	7.4	8.8	0.7
Smartphone	12.5	14.7	14.7	25.0	**32.4**	0.7

Approaches to Learning and Technology

Approaches to learning were identified for all participants as well as the self-identified importance and usage of technologies in the classroom. This study analyzed the correlation between the participant's average rating for frequency of technology usage, importance of technology to learning, and the ATTLS construct scores using bivariate Spearman correlations for working with Likert data. Chapter 3 further explained the analysis techniques used in this study. A significance level of 0.05 will be required to determine a significant relationship, indicating that the risk of concluding that a correlation exists, when one does not, is 5%.

Separate knower and technology usage correlations. The bivariate Spearman correlation between the participants average reported technology usage and their identified ATTLS scoring of the Separate Knower (SK) subcategory was calculated, resulting in a correlation of $r(129) = -0.12$, $p = 0.19$, indicating overall there is not a significant correlation between the ATTLS scoring in the SK grouping and their reported average usage of the defined technologies. When comparing each of the participant's reported technology usage frequencies,

two categories resulted in minimally significant relationships. The use of apps on a smartphone resulted in a correlation of r (129) = 0.19, p = 0.04, indicating a weak relationship between a higher ATTLS score in the SK category and higher frequency of smartphone app usage. The second category, playing strategy games on a computer, resulted in a correlation of r (129) = -0.19, p = 0.03, indicating a weak relationship between a lower ATTLS score in the SK category with more frequency of strategy game usage. Table 16 contains the correlation coefficients of frequency of technology usage and the scoring of the SK subgroup on the ATTLS.

Table 16

Spearman Correlations Between ATTLS Scoring for SK Grouping and Reported Technology Usage

Technology Importance	**Correlation Coefficient**
Searching for information with a Smartphone	-0.01
Search for information with an iPad	-0.10
Use apps on a smartphone or iPad	0.19*
Search for information on the Internet using any device other than a phone or iPad	-0.12
Check your school email	-0.10
Read a blog	-0.12
Comment on a blog	-0.07
Read a long, detailed web page	-0.08
Play a strategy game on a computer	-0.19*
Play a strategy game on a smartphone or iPad	-0.05
Read an e-book	-0.04

Note. * denotes correlation is significant at the 0.05 level

Separate knower and technology importance correlations. Additionally, the bivariant Spearman correlation between participants average reported importance of the given

technologies and their ATTLS scoring for the SK category was calculated, resulting in a correlation of r (129) = 0.03, p = 0.76, indicating overall there is not a significant correlation between the scoring in the SK category of the ATTLS construct and the rated importance of technologies in the participants' learning. When comparing each of the participants' reported importance rankings of each item, none of the items resulted in a significant correlation indicating the perceived importance of technology and the participant's score in the SK category have no correlation. Table 17 contains the correlation coefficients of each technology item with the SK scoring of the ATTLS.

Table 17

Spearman Correlations Between Scoring of the SK Category on the ATTLS and Reported Importance of Technology in Learning Items

Technology Importance	**Correlation Coefficient**
Overhead Projector	0.01
Laptop Computer	0.09
Calculator	0.04
Smartphone	0.00
iPad	-0.06
Blackboard Collaborate	0.08
Learning Management System (LMS)	-0.02

Note. * denotes correlation is significant at the 0.05 level

Connected knower and technology usage correlations. The same bivariate Spearman correlation was run on the relationship between the participants average reported technology usage and their identified ATTLS scoring for the CK subcategory, resulting in a correlation of r (129) = 0.02, p = 0.82, indicating overall there is not a significant correlation between the scoring of the CK group on the ATTLS and their reported average usage of the defined

technologies. When comparing each of the participant's reported technology usage frequencies, the category of "Searching for Information on a Device other than a Smartphone or iPad" resulted in a correlation of r (128) = -0.21, p = 0.02, indicating a weak relationship between a lower ATTLS construct score of CK with the participant's higher reported frequency. Table 18 contains the correlation coefficients for frequency of technology usage and the CK scoring category of ATTLS.

Table 18

Spearman Correlations Between CK Scoring Category of ATTLS and Reported Technology Usage

Technology Usage	**Correlation Coefficient**
Searching for information with a Smartphone	-0.02
Search for information with an iPad	0.08
Use apps on a smartphone or iPad	-0.04
Search for information on the Internet using any device other than a phone or iPad	-0.21*
Check your school email	-0.17
Read a blog	0.04
Comment on a blog	0.10
Read a long, detailed web page	0.12
Play a strategy game on a computer	-0.05
Play a strategy game on a smartphone or iPad	-0.01
Read an e-book	-0.06

Note. * denotes correlation is significant at the 0.05 level

Connected knower and technology importance correlations. Finally, the bivariant Spearman correlation between the participants average reported importance of the given technology and their scoring in the CK category of the ATTLS were calculated, resulting in a correlation of r (129) = 0.03, p = 0.71, indicating that the overall importance ratings of

technology and their ATTLS scoring of the CK category are not significantly correlated. When comparing each of the participant's reported technology importance rankings, the smartphones item was found to have a significant correlation of r (129) = 0.17, p = 0.05, indicating a weak relationship between a higher ATTLS scoring in the CK category with a higher reported importance of cell phones. Table 19 contains the correlation coefficients of the relationship between technology importance and the scoring in the CK category of the ATTLS construct.

Table 19

Spearman Correlations Between ATTLS CK Category Scoring and Reported Importance of Technology in Learning

Technology Importance	**Correlation Coefficient**
Overhead Projector	-0.07
Laptop Computer	0.04
Calculator	-0.01
Smartphone	0.17*
iPad	0.11
Blackboard Collaborate	-0.10
Learning Management System (LMS)	-0.12

Note. * denotes correlation is significant at the 0.05 level

Additional Influences of Technology on Approaches to Learning

In addition to the statistics given, participants had an opportunity to add other comments about how technology influences their ability to learn. Of those sampled, ten participants responded. Both the positive and negatives of technology use were expressed when a participant stated, "technology is the next generation of learning. The ability to sync everything so that all required materials are readily accessible makes things much easier for students" and another indicated that technology can be "incredibly distracting."

Functionality of the technology is critical as expressed by one participant who said, "Technology makes learning much easier when it works properly. Blackboard is not one of those things however. It is slow and 'broken', rendering it completely useless. The same can be said for online utilities like My LabsPlus." One participant noted the ease of taking notes with a laptop compared with more traditional ways such as paper and pencil.

Others indicated a perceived hampering of relationship with instructors, "I came to seek an education from professors who could give a specific insight. So far I have taught myself everything through Blackboard and other online programs that the university feels are more important." One said experience with online courses had not existed previously and "the adjustment period was rough especially with math".

Research Question 4: What is the relationship between social media usage and the separate knowing and connecting knowing categories of the ATTLS?

Survey questions 19-27 from Appendix A were used to answer research question 4. Students were asked to identify their frequency of using Facebook, Twitter, and other collaborative tools.

Profile of Social Media Usage

Survey question 19 asked participants to identify if they had taken any courses that utilized social media in their learning activities, resulting in 54.4% stating that they have. To further explore their use of social media, the participants were asked to identify the frequency in which they use Facebook from options of 6 or more times daily to never. Participants identified that a majority (41.2%) utilized Facebook 1-5 times daily, followed by once a week at 39%. In comparison, participants were asked about their Twitter usage, resulting in 34.6% identifying

they use it once a week and 30.9% using it daily. The reported social media usage is shown in more detail in Table 20.

Table 20

Social Media Usage Profile (n= 136)

	n	%
Courses Used Social Media		
Yes	74	54.4
No	62	45.6
Frequency of Facebook Usage		
6 or more times a day	7	5.1
1-5 times daily	56	41.2
Typically once a week	53	39.0
Never	20	14.7
Use Online Blog		
Yes	20	14.7
No	116	85.3
Used Wikipedia/Wikis		
Yes	100	73.5
No	36	26.5
Frequency of Twitter Usage for College Events		
Daily	59	43.4
Once a week	42	30.9
Once a month or less	34	25
Not Reported	1	0.7
Frequency of Twitter Usage		
Yes	103	75.7
Daily	42	40.8
Once a week	47	45.6
Once a month or less	14	13.6
No	33	24.3

The median, mode, and range of the responses were calculated and shown in Table 21. Of the two platforms identified (Facebook and Twitter), Facebook had the highest median at 3.00 (Range = 4.00), indicating that fewer students were using this tool versus Twitter.

Table 21

Median, Mode, and Range Values for Reported Social Media Frequency Usage

Technology Usage	**n**	**Median**	**Mode**	**Min**	**Max**	**Range**
Twitter Usage for Trends in Areas in Interest	100	1.00	1.00	1.00	3.00	2.00
Twitter Usage	103	2.00	2.00	1.00	3.00	2.00
Facebook Usage	135	3.00	2.00	1.00	4.00	3.00

Note. The scale used for assessing social media usage was 1 – Often/Frequently to 3 – Rarely/Never.

Social Media and Approaches to Learning

To further explore the relationship between reported social media usage and the scored ways of knowing construct, the bivariant Spearman correlation was performed between the participants average reported usage of the social media platforms and their scored ATTLS grouping. This average was calculated by taking the participants responses to each of the three items on social media usage and calculating the mathematical average.

Separate knower and social media correlations. The bivariant Spearman correlation between the average frequency of social media and the participants scoring in the Separate Knower (SK) subcategory of the ATTLS was calculated, resulting in a correlation of $r(130) = -0.02$, $p = 0.84$, indicating that overall social media usage reported and the scoring in the SK category of the ATTLS construct are not significantly correlated. When comparing each of the participant's reported social media usage, none were found to have a significant

correlation. Table 22 contains the correlation coefficients of the relationship between reported social media usage the scoring of the SK category on the ATTLS.

Table 22

Spearman Correlations Between SK Category Scoring on the ATTLS and Reported Social Media Usage

Technology Importance	**Correlation Coefficient**
Facebook Usage	0.01
Twitter Usage	0.01
Twitter for Trends in Areas of Interest	0.03

Note. * denotes correlation is significant at the 0.05 level

Connected knower and social media correlations. The bivariant Spearman correlation between the frequency of social media usage and the scoring of the CK category on the ATTLS construct was calculated, resulting in a correlation of r (130) = -0.04, p = 0.62, indicating that overall social media usage reported and the scoring of the CK category on the ATTLS construct are not significantly correlated. When comparing each of the participant's reported social media usage, none were found to have significant correlation. Table 23 contains the correlation coefficients of the relation between reported social media usage and the scoring in the CK category of the ATTLS construct.

Table 23

Spearman Correlations Between Scoring of the CK Category on the ATTLS and Reported Social Media Usage

Technology Importance	**Correlation Coefficient**
Facebook Usage	-0.03
Twitter Usage	-0.01
Twitter for Trends in Areas of Interest	0.03

Note. * denotes correlation is significant at the 0.05 level

Survey question 27 asked participants if they were to contact their professor for an appointment, would they prefer to call, text, instant message, or use Facebook. The participants identified (at 66.9%) that they would prefer the use of email when communicating with their professor. Figure 4 contains reported frequencies.

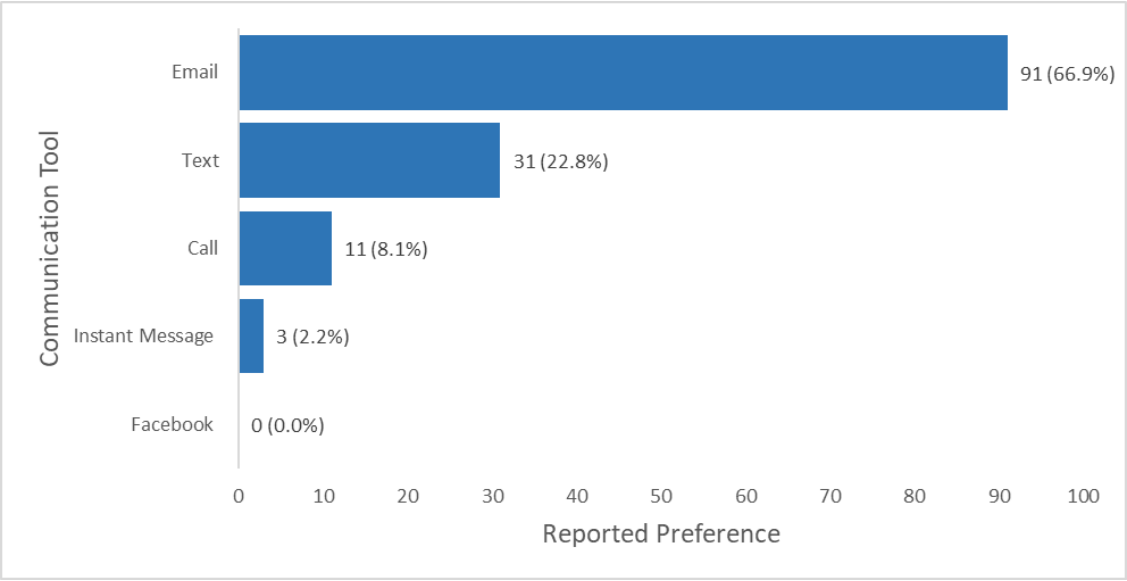

Figure 4. Reported communication preference with professors

Research Question 5: How do millennial students enrolled in a freshman seminar course describe their learning experiences?

Survey questions 28-33 from Appendix A were used to answer research question 5. Students were asked to identify their expected instructional strategies for the first semester of college, one thing about college that was surprising, overall satisfaction with their college experience, to identify what had helped them the most, and what they enjoyed most about their college courses.

Students were asked to provide any of the instructional strategies that they had expected for their college experience. From the responses, 120 (31.7%) students identified an expectation of traditional PowerPoint lectures and 100 (26.4%) indicating reading-based discussions. Figure 5 shows the frequencies of expected instructional strategies. Of the two "other" responses, only one took the opportunity to further explained, indicating more interaction with students being expected.

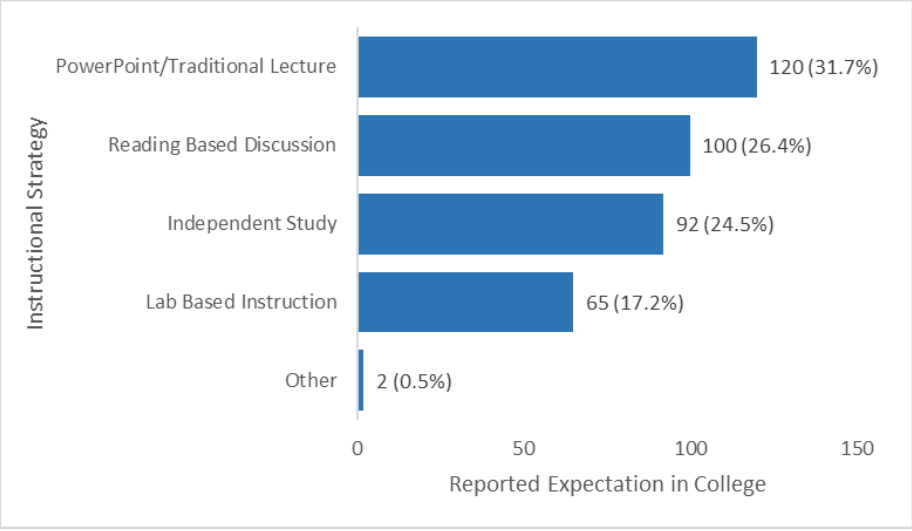

Figure 5. Reported expected instructional strategies in college

Participants were asked to report whether their instructional strategies experienced in college were the same as those experienced in high school, 98 (72.1%) reported experiences in college that were different from their high school experiences. Figure 6 shows the frequencies.

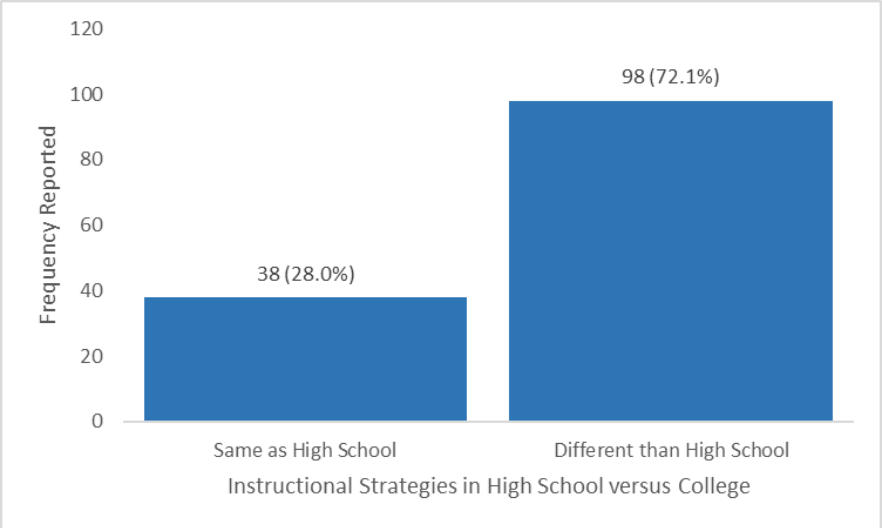

Figure 6. Reported comparison of instructional strategies in high school and first semester of college

Survey Question 30: What is one thing about college that has surprised you?

Of 136 participants in the study, seven choose not to answer this question. Some of the participants noticed that college had not surprised them while others stated they had been surprised as they transitioned to the collegiate setting from high school. One participant specifically noted the possibilities in college to be involved in student organizations.

Three major themes emerged in responses to this question: time, relationships between faculty and students and structure of courses including the use of technology. The predominant theme was time and its management. Comments about the long length of lectures and courses which required more studying than others were also made by participants. More free time was mentioned by some while others lamented a perceived lack of free time and the need to spend

more time studying in college than they had done in high school. One participant stated that while in college study habits had dramatically improved while another articulated "All of the responsibility is on me and it is my job to keep my grades up."

Expectations of technology and its use in college were expressed. The amount of online work, the need to learn to use blackboard and other technology tools appeared to also be surprising to participants. One participant said, "I am surprised how much we use the internet to get information about required assignment". Further developing this idea of accessible resources online one participant stated "I wasn't expecting something like blackboard to be so present. At my high school, everything was pen and paper. I like how a lot of resources are readily available for me online".

Technology did not replace a perception that the relationship between faculty and students still needed a personal commitment. Comments about professors who don't care if you are listening were made such as "The amount of disconnection between the students and professors is really high". Knowing themselves was evidenced by one participant in saying "Online classes are very difficult to keep track of because I am a very personal person". The result of the "overall lack of help from professors" led one participant to access other university resources such as the Tutoring Center. Sadly, one participant relayed "how much you can study and still fail. How terrible some of the teachers can be. How much useless information that a teacher can give and tell you to study".

How college courses are structured seemed surprising particularly in the area of math. Information overload, disconnections between what was taught in the lecture and what was on the test, lack of review given by professor, and reliance on online tools to the exclusion of class explanations were given. The amount of "how many chapters I had to read for one test" to

"listening in class does not mean you get a good grade. You have to do more studying that the professor did not talk about" were also stated.

Survey Question 31: Describe your overall satisfaction with your college courses.

This question netted 128 responses of the overall 136 participants. The level of satisfaction with their college courses was reported generally in a positive manner with some very similar comments to other questions on the survey. Two themes of possible discontent arose from comments concerning the level of engagement reflected in the attitude toward learning and methods of learning and the popularity of online courses.

Engagement or rather the lack of engagement emerged as a theme. One participant stated, "Many of my courses are average to acceptable. They are in no way engaging, with the exception of a foreign language class I am enrolled in". Minimal satisfaction was very low for another participant as well.

> Overall my satisfaction with my college courses is very minimal. In many of my classes, the professors and instructors are of little to no help to me with a question. I am the type of learner that I have to see something explained or worked out in front of me to learn it and in many cases I have no gotten that.

Yet others expressed a strong level of satisfaction with college courses. "I am overall satisfied with my courses. They are all very challenging courses and require lots of engagement in the class, but it is for the better of my learning".

Participants also reported a basic understanding that the structure of the course being taught might not lead to the best instruction, "Some classes I feel aren't taught as well as they could be but I understand that a large lecture hall with only 50 minutes to teach isn't the most

ideal teaching setup." Another elaborated on this idea by saying. "I wish there was an easier way that professors could teach different learning styles to study for tests". Two specific courses were cited as lacking in engagement and addressing the needs of individual students by another participant who said,

> I am satisfied with about 65% of my courses. I was not happy to take a required Computer Competency course for the business college because it was all common knowledge and the times to take tests were very difficult for me to work around. I don't like that one of my courses assigns busy work. another course in which I feel is a waste of time since we are taught material we already know.

Online courses were perceived by some to be lacking in connection with the faculty or professor teaching the course, "I am having a hard time with my classes; however, I do like them. I do not like my online course classes at all. I find it extremely hard to get things done without seeing a professor and meeting for class". A desire for more interaction with the faculty was expressed more than once by participants. One participant articulated that "online courses are a nuisance and I end up teaching myself everything".

Survey Question 32: What things are helping you the most as a new college student?

Technology tools such as laptops, computer labs, tutoring and the enhanced learning center along with the support from others in the academic setting were recognized as being of help as new college students. Some participants specifically cited their laptop, new computers, and the campus sources such as the Enhanced Learning Center. Mandated and enforced study times with pledge brothers, supports for student athletes and the easy accessibility to the Walton Writing Center and the BLAW tutoring sessions which were held for extra practice also were

stated as sources of help. More dated tools such as a dry erase boards were mentioned by one participant who said, “dry-erase board for college algebra”.

The support being provided for student athletes as well as those in the Greek community also extended to personal and family relationships as participants discussed older siblings, roommates, peers and upperclassmen as being good sources of help. Despite these supports, students still struggled with time management and the ability to best manage enjoyment and immersion in the college life with the serious side of academics. One participant said, “Being busy, which requires me to prioritize and make a schedule so that things can be done in a timely manner”. Another added “getting advice from mentors on how to use free time wisely, allowing time for education, and also personal time to be with friends and allowing time to relax and enjoy college”. Not feeling alone in these adjustments was evidenced in this response, “having familiar faces in classes and small classes that help me get to know people better” and also “the atmosphere of being around people that struggle just as much”. Additionally, location on and to campus seemed to be of importance by this comment, “study halls at the end of my hall” and “living in the middle of campus. My furthest class is a 5 minute walk from my dorm and it has been extremely helpful to be that close to all the things I need access to”.

Survey Question 33: What do you enjoy most about your courses?

A high number of participants, 129, answered this question. Diversity in classmates, topics, and ability to use individual strategies for success in the classroom was a strong theme in the responses. One participant particularly cited the diverse classrooms, “I get to experience different cultures and meet people from foreign nations”. Meeting new people and the resulting interactions with those new individuals were also sources of enjoyment to students. The opportunity to meet other students in their same major was also mentioned. One participant

discussed the enjoyment found with other students, “making connections with students early in the semester makes everything much easier. It gives you something to look forward to when coming to class. Also, if you miss a lecture, they can help you with notes and such”. These diverse experiences with new and interesting people were mentioned by several participants.

Participants also indicated appreciation of diverse and relevant topics which were perceived to “apply to my job when I come out of college in 4 years,” “I feel like now that I’m in college, what I’m learning is actually important now” and “we are learning exactly what we need to know”. New learning opportunities, new topics, and simply “the feeling when you learn something new and you know you’re not going to forget whatever it was” were mentioned.

Awareness of their own approaches to learning was mentioned on a somewhat limited basis. One participant seemed to understand their own preferences when it was stated,

> I enjoy being able to somewhat go at my own pace and use what strategies for studying work best for me. I appreciate that most of my courses do not assign busy work like in high school classes (one of my courses is an exception). I happily acknowledge that my professors seem credible and have sufficient knowledge in their subject.

Being allowed to navigate the learning process in the optimal way for them was mentioned when the participant said, “The fact that I can study my own way instead of being forced to study a certain way like in high school”. Another participant also mentioned that, “the most enjoyable part is most of my instructors teach in a way that works best for me and if I have questions, I can go and talk to them”.

Summary of Findings

This chapter presented the findings of a survey given to 136 college students on their technology and social media usage and approaches to learning. Through descriptive analytics, it was identified that only 59% of students agree they had learning strategies that sometimes aligned with their educational goals. Of those surveyed, 83% were identified as the connected knower on the ATTLS construct. Minimal to no significant relationship was identified to exist directly between technology and social media usage and the participant's identified approaches to learning.

CHAPTER V

CONCLUSION, DISCUSSION, AND RECOMMENDATION

The volume of information that is accessible to students and methods of obtaining this information is continually evolving for today's generation of students. The educational environment is tasked with being able to keep up with these changes and utilize the latest tools to improve student learning. Howe and Strauss (2000) and Prensky (2010) identified generational characteristics that they deemed necessary to further the understanding of efficiently educating today's generation. While their constructs have developed among the popular press, there are still some of these traits that are prominent in today's generation and must be considered in curriculum development, especially as the frequency for online course offerings continues to grow. The relationship and influence of the role technology and social media usage plays in these individual approaches to learning has continued to be considered but not well established.

Summary of the Study

Purpose and Conceptualization

Approaches to learning are theorized as something that cannot be taught, and are inherently part of the student, such that everyone approaches learning differently. Thus, the purpose of this study was to develop a profile to describe the students' perspectives on the relationship of technology and social media on their individual approaches to learning and to identify the approaches to learning of the millennial generation. Participants in this study completed a survey that contained three sections: a demographic information survey collecting information on the basic characteristics of the participants, information regarding their high

school experiences, and technology and social media usage; expectations of college based on self-identified ratings; and Attitudes Toward Thinking and Learning Survey (ATTLS). Data was collected from a sample of 136 students enrolled in a freshman business college seminar course.

Research Design and Data Analysis

This was a quantitative survey study with obtained qualitative data through open response survey questions; therefore, analyses were conducted with descriptive statistics to construct a profile of the participants demographics, technology and social media usage, and their approaches to learning. A correlation test was used to determine any significant relationships between identified approaches to learning with their frequency of technology and social media usage.

Findings

The daily lives of students are supported by the use of technology in communication and social activities; however, there are significant differences in the use of technology for learning. Youth today has extensive access to technology and tools, but the use of technology to support learning is very heterogeneous. There are some who engage in a wide range of technology-based activities, including content creation and self-publishing, while others report never participating in those activities. This study presented the findings of a survey given to 136 college students.

Upon completion of analyses, it was determined that only approximately 59% of students agreed that their learning strategies sometimes aligned with their educational goals, in contrast to the belief presented by Goldman and Martin (2016), Howe and Strauss (2000), and Prensky (2010) that millennials are confident and aware of their own preferences for learning.

Students were then asked to answer a set of 20 items for the ATTLS construct. The results showed an overwhelming 83.1% identified as part of the connected knowing group.

Overall correlations among technology usage and perceived importance with the scoring of the two subcategories of the ATTLS construct resulted in weak to no relationships.

Students were asked to answer questions regarding their expectations of college, finding that some students had been surprised by the transition to college through time management, faculty and student interactions, and the use of technology in the classroom. When asked about their overall satisfaction with college, a recurring theme was the level of engagement, supporting research that the immersion in digital content could lead to this lack of engagement (Junco & Clem, 2015; Turner, 2015) and the desire for those of the millennial generation needing to feel engaged (Howe & Strauss, 2000; Prensky, 2010). When students were asked what they enjoyed most overall about college, participants identified diversity in classrooms and the ability to use individual strategies for completion of educational goals. This links back to their ranking of item eight on the ATTLS construct, where they stated they enjoyed hearing opinions of people who come from backgrounds different than their own.

Conclusions and Discussion

While significant relationships were not identified in approaches to learning and the usage of technology and social media, several other conclusions can be made from the findings in this study. Conclusions supported by data are explained in the following sections.

Research Question 1 Conclusion

Research question one focused on determining what the demographic profile of millennial students enrolled in a freshman seminar course looked like. Students were asked to report their overall technical confidence with 77.2% identifying themselves as fairly skilled, defined in the survey as having been able to function skillfully with a variety of software, use the Internet for advanced searches, and effectively navigate web sites. This perceived confidence

closely relates to the description of millennial generations being heavily immersed in technology and their ability to use all devices efficiently (Howe & Strauss, 2010; Prensky, 2010; Tapscott, 2009, Small & Vorgan, 2008).

The students were asked about the use of learning strategies in high school. Of the 136 participants, it was identified that the most common learning strategy experienced in high school was traditional PowerPoint lectures and reading based discussion. This theme supports the need for change in the educational realm, in engaging these students more through content beyond the use of PowerPoint. While PowerPoint slides may work effectively as visual aids, this is often not the technical integration that students are looking for. Research suggests that how someone thinks, solves problems, and learns has a significant impact on a person's ability to function in a technologically rich environment (van Laar, van Deursen, van Dijk, & de Haan, 2016) and that students are looking for job readiness (Anderson & Gantz, 2016) rather than just exposure to a tool. Anderson and Gantz's (2016) research aids in forecasting the competencies that will be of highest demand by 2024, indicating that employers are looking for students with a broad range of capabilities from working in dynamic environments to being able to adapt to new technologies and skills the workforce has to offer. Anderson and Gantz (2016) identified major trends shaping the skills of the future workforce as an increasingly diverse customer base, expansion of mobile customers and electronic communications, importance of digital commerce and content, emergence of a green economy, and expectations of intuitive technologies and connectedness. Research identified that technology is now making its way into an increasing number of job areas that are not technology focused, including logistics, medicine, auto repair, and hospitality to support the demands of a global economy (Anderson & Gantz, 2016).

Research Question 2 Conclusion

Research question two addressed the self-identified ways of knowing as measured by the Attitudes Toward Thinking and Learning Survey (ATTLS) for millennials enrolled in a freshman seminar course. Millennials have been characterized by researchers as a group who is more ethnically diverse than prior generations, driven to collaborative learning and the need to understand the opinion of others (Howe & Strauss, 2000; Williams et al., 2017). The connected knower prefers to relate to others and help them understand, using personal experiences. Small and Vorgan (2008) expressed concerns that the innate multitasking of millennials could lead to a lack of reflection or thoughtful decision making; however, in review of the questions on the ATTLS construct, students were asked questions about understanding individual differences, differences in perspectives, and empathizing with others. With an overwhelming 83% identifying as connected knowers, this recognizes the participants in this study as mostly those engaging in a reflective process when considering differences and reaching out to others, allowing for an engaging conversation amongst students to relate meaning in content to life experiences without the fear of attacking the beliefs of others as incorrect or misinformed. In comparing the overall individual responses for the ATTLS, it was found that those with the highest frequency in both categories were questions supporting speculation made about the desire to remain connected and the understanding of diversity in others made by Prensky (2010) and Howe and Strauss (2000).

Research Question 3 Conclusion

Research question three explored the relationship between technology usage and the separate knowing and connected knowing categories of the ATTLS. Students were asked in this study to identify their frequency of usage of the given technologies on a scale of 1 (Once Daily) to 5 (Never Use). While millennials may actively engage with technology in their daily lives, this

does not correlate to their approaches to learning. Researchers have stated that the millennial generation is one of the most connected generations, with an abundance of information at their fingertips; however, some have also speculated that because they've grown up immersed in the technology, they innately know how to use it (Howe & Strauss, 2000; Prensky, 2010) and have a preference for game-based learning (Prensky, 2010). Students identified the most common technologies used for learning as email and searching for information on the Internet, while others like "playing a strategy game on a computer" and "read an e-book" were rated as never used. While e-books have continued to evolve and gain popularity in education, this appears to not be a form of digital content that freshman business students are utilizing. In running correlation tests, minimal to no significant relationships were identified between technology usage and approaches to learning. It was found that a weak relationship exists between a higher score on the separate knower subcategory of the ATTLS and the usage of apps on a smartphone, where interacting with strategy games had a negative relationship on the subcategory score. This seems to contradict what is known about the difference in the separate and connected knower categories, where separate knowers are objective and approach problem solving in an objective manner (Galotti et al., 1999).

When asked to rank the importance of specific technologies in their learning, items such as laptops, calculators, smartphones, use of communication tools, and learning management systems were rated as "crucial." Those receiving the highest frequency percentages were calculators (at 70.6%), learning management system (at 66.9%), and laptops (at 52.9%). When comparing the importance of technology to learning and their approaches to learning a weak significant correlation was found with the importance of the smartphone and the connected knower subcategory. The perceived importance of the smartphone supports inference by Howe

and Strauss (2000) and Prensky (2010) that the millennial generation is one of the most connected generations.

Research Question 4 Conclusion

Research question four explored the relationship between social media usage and the separate knowing and connected knowing categories of the ATTLS. In this study, students were asked to answer questions about their social media usage to get a better understanding of the need for connectivity and its influence on their learning strategy preferences and approaches to learning. The participants were asked to identify the frequency in which they used Facebook with a ranking of "6 of more times daily" to "never." Of the responses, 41.2% identified having used Facebook "1-5 times daily", followed by 39% stating "once a week." Participants were also asked about their Twitter usage, with 34.6% identifying they used it once a week and 30.9% using it daily. When asked about their use of blogs, 85.3% stated they have never used them; however, when asked about wikis, 73.5% stated they had. Wikipedia is a popular form of information sharing, allowing for collaboration from others to answer questions about areas of interest. While in recent years, Wikipedia has become more reputable in validating its content, the service is still based on the concept that individuals contribute to a working foundation of knowledge. To gain a better understanding of the relationship between social media usage and approaches to learning, a correlation test was run. The results of the correlation test found overall no significant relationship between the reported frequency of usage and their approaches to learning. While findings in their approach to learning has suggested the need for engagement and development of relationships with professors and fellow classmates supporting speculation made by Howe and Strauss (2000), Prensky (2010), and Small and Vorgan (2008), the data did not corroborate that social media had any significant relationship with these preferences.

Research Question 5 Conclusion

Research question five further explored how millennial students enrolled in a freshman seminar course described their learning experiences. Students were asked to describe their learning experiences through a series of open response questions. Among those responses, it was identified that common themes across all questions were engagement, time management, relationships between faculty and students, and the need to focus on the structure of developing curriculum to meet some of these needs. In this study, the students identified a need to still feel a connection with faculty, even in an online course environment. With growing class sizes, and the continued growth experienced in online course offerings, this is something to keep in mind. Many of the comments made by students regarding satisfaction with their courses had to do with professor and student interactions and time management in their transition from high school to college. The identification of this need for interaction and the forming of relationships is supported by researchers Goldman and Martin (2016) and authors Prensky (2010) and Howe and Strauss (2000) in describing the millennial generation. The struggle with time management identified in the participant responses contrasted with the characteristic presented by Elarm et al. (2007) that millennials have become accustomed to structuring time and working from schedules. When students were asked what things were helping them most as college students, the recurring themes were laptops, computer labs, and enhanced learning centers that offer tutoring and support. These responses support earlier findings in this study where participants identified importance of technologies in their learning. Along with these supporting tools, the students also identified interactions with classmates through extracurricular activities and Greek life as significant sources of help and support systems. When asked what they enjoyed most about their courses, the participants enjoyed diversity and interaction with new classmates that

they didn't have in high school as well as class topics being more focused on their area of interest, such as their major. The need to interact with others of diverse backgrounds is supported by the high median on item eight in the ATTLS, where the participants identified a desire to share in the opinions of others. The desire to focus on areas of interest supports assumptions made by researchers Prensky (2001b) and Turner (2015) that while a lack of focus may be a struggle of the millennial generation, they have a desire to focus on items of interest.

These identified recurring themes support the identified approaches to learning in their need for support systems through relationships with faculty, family, friends, classmates, and services offered on campus. In this study, the responses given by the participants support the need to focus curriculum development, whether face to face or online environments, on providing these needs and interactions.

Revised Conceptual Framework

After analysis of the data collected in this study, it was determined that in the proposed conceptual framework, social media usage did not appear to have a significant relationship with the approaches to learning of the millennial generation, and thus was removed from the conceptual framework. While only a minimal significant relationship was concluded to exist between these same constructs and technology usage, there still appears to have been a minimal correlation across other areas in connecting with professors, the need to access information across devices and platforms, and the tools that learning management systems offer course designs. The results of the ATTLS, with 83% identified as the connected knower category, seems to support the generational characteristics of millennials as identified by Howe and Strauss (2000) and Prensky (2010). As technology immersion continues to develop, the thoughts provided by McLuhan on the importance of understanding not just the content being presented

but also the technology being used will continue to play a role in the use of digital content in the educational realm. Figure 7 illustrates the revised conceptual framework for this study.

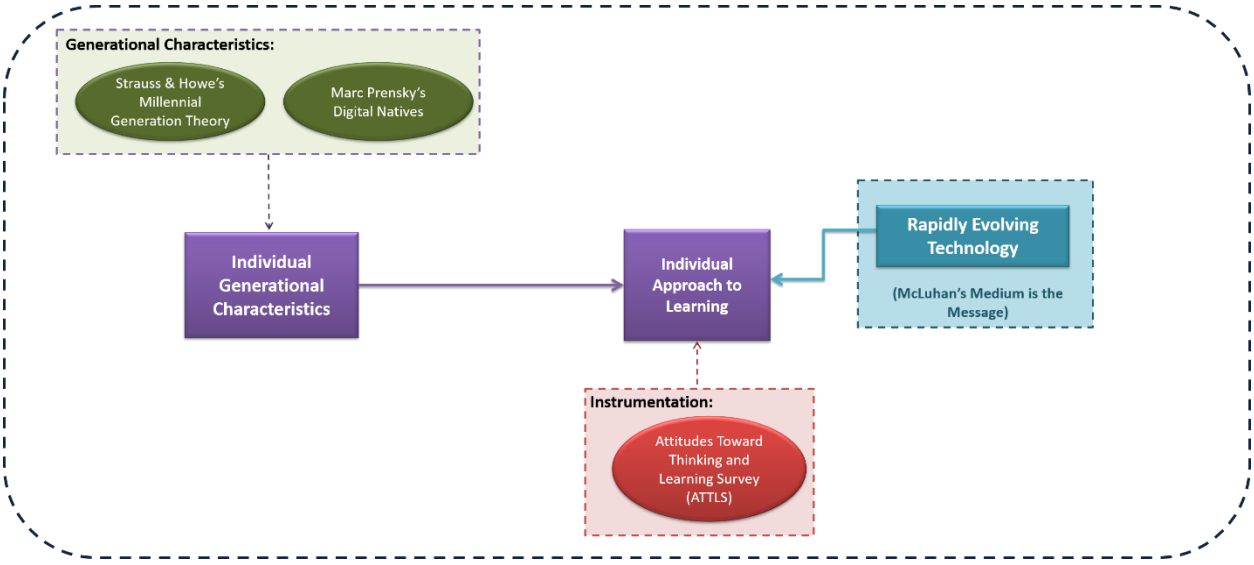

Figure 7. Revised conceptual framework

Implications of the Study

The growth of online courses and the understanding of student learning in curriculum development have become common patterns of research in academia. The primary contribution of this study was to provide an insight into the perspectives students hold on the use of technology and social media in learning and some items of discontent that are being experienced by these participants in their first semester of college. While significant research has been done in the area of generational characteristics and the use of technology and social media on student academic performance, the relationship between these characteristics and technology and social media immersion has had with the student's approach to learning has minimal exploration. As resources continue to become more limited in education and funding based on academic

performance continues to rise, identifying success factors in student learning has become imperative. This study aimed to explore these expectations and approaches.

While this study contributes to a better understanding of student struggles and expectations in higher education for professors and administrators, there is still much research to be done into individual approaches to learning and how-to aide students in successfully implementing these into their study habits to become successful in any classroom environment. As technology continues to evolve and new tools arise, the challenges faced by students and professors will need further exploration. While age and technology may not empirically be proven as the reason for these struggles, the need for addressing the concern still exists.

Four general themes emerged from the results of this study: time management, relationships, course design, and the student's awareness of their approaches to learning. From the open response survey questions, it was identified that students struggle with time management in prioritizing and balancing their time effectively to develop strong time management skills. The relationship identified between students and faculty was also of concern. Regardless of advancements in technology and communication tools, participants in this study still identified the need to feel connected to their professors. Rather than making communications and relationship building easier, technology appears to have hindered the development of those relationships and open communication that may have once existed between a student and faculty member. The participants in this study were looking for engagement in their classes, whether that be from relating course work to real-life experiences and case studies or just that connection between the professor and fellow classmates. When developing course content, these themes are something to keep of strong consideration. Students are looking for diversity in topics and content, a structured course that is clear and concise, and the inclusion of some technology,

whether that be effective tools to supplement lecture, or online learning management systems that allow communication and interaction amongst others in the class; the development of assignments that relate back to real world experiences, while allowing for collaboration in teams. Many of the comments made by students about online courses were a lack of engagement based on lack of interactions with others and no relationship development with the faculty member. While the tools that an online learning management system offers were appreciated and encouraged, the reliance on this as the primary learning format was their complaint. They enjoyed the access to information at any desired time, but still wanted to feel a developed and engaged relationship with others. An active assumption has been made that the apparent high reliance on technology in their daily lives, such as smartphones and Facebook, means millennials can easily learn to use a learning management system or that they can easily monitor and self-regulate their use of technology and learning for online courses. This assumption was not proven to be correct in this study.

The growth of online course offerings continues, but the design often does not match the need for engagement in learning and the need for interaction of many students. While online courses are useful for many, they are not universally for all. Many aspects of the educational system appear to be more modeled toward the separate knower, who prefers clear, laid out plans of design and with little to no engagement required to be successful; this study has shown that this model of education is not universal. In a time when retention is a primary focus for any institution while resources remain low, key factors to keep in mind include: course development strategies while keeping in mind the approaches to learning for an entire student population, relationship development with faculty, and engaging the students.

Recommendations

Based on this study, the recommendations were made based on the findings of approaches to learning, technology and social media usage, and an understanding of the student perspectives and their expectations of college.

If performing this study again, the researcher would have asked the participants for additional information in regard to prior college experience through concurrent classes and more information about those experiences to give context to their perspectives. As one of the themes identified in this study was the need for a strong connection with the professor, the researcher would have asked more information in regard to the size of the high school attended, as this could affect their expectations of college and development of relationships.

After data collection for this study, the researcher was disappointed in the low participation rate based on the potential sample size. To address this, the researcher would have explored making the survey completion a required assignment as part of the college seminar course with an alternative assignment for those not wanting to participant in the survey.

Recommendations for Future Research

Additional research is needed to further understand the millennial generation and the impacts of their cultural environment on their individual approaches to learning. It is also of interest to the researcher to look at the location of the participant's high school and determine if differences in expectations of high school versus college exist based on more rural location settings due to class sizes. One of the fundamental concepts of working with millennials is their immersion in technology and speculation that they are proficient in anything technical. The researcher would like to get a better understanding of their skill level with technology in comparison to their confidence level to see if there was any effect on the correlated relationship

with technology. Furthermore, the assumption has been made that millennials work closely with social media networks (like Facebook and Twitter), mobile devices, and tablets, but can they relate these stills back to methods of improving their learning or apply them to their approaches to learning? This leads the researcher to the question of whether the participants view technology as a tool for learning or as an expectation to be used in their learning. This study did not address this distinction. As online courses become more common in the higher educational arena, the researcher would focus on approaches to learning for those in online courses to aid in developing better strategies in course design.

Conclusion: Final Thoughts

Discussion of the millennial generation has been a hot topic among popular press avenues in their descriptions and common characteristics, often assuming the technical skill of all of those born in the millennial generation. This study shows, this may not always be the case and still requires effective use of technological tools in the educational environment to effectively aid learning. This discussion on millennials is taking place while a generation is still maturing, where maturity may lead to wiser use of technology and a better understanding of their own learning strategies and how technology can aid rather than distract. As this becomes a growing concern, academia may continue to consider accessibility of their research, where information can aid and influence society, while most research is published in peer reviewed journals that individuals in education may not actively seek out daily.

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APPENDIX A

Demographics, Technology, and Social Media Usage

Basic Demographics

1. Your gender is (Choose One)

   _____ Male _____ Female

2. Your current age is (Fill in) _____.

3. What is your ethnic or racial group? (Check One)

   _____ African American _____ Asian

   _____ Caucasian/White _____ Hispanic or Latino

   _____ Native American _____ Multiracial

   _____ Other (specify: _____)

4. Are you considered an international student by your university? (Check One)

   _____ Yes, go to question 5

   _____ No, go to question 6

5. What country are you currently a legal resident of? (Fill in) _____.

6. Are you a traditional or non-traditional student? (Check One)

   _____ Traditional (straight out of high school to college)

   _____ Non-Traditional (at least a semester break between high school & college, including GED completion)

7. Are you a full-time or part-time student? (Check One)

_____ Full-Time (12 hours or more)

_____ Part-Time (11 hours or less)

8. What is your current college major? (Drop Down)

_____ Accounting _____ Marketing

_____ Economics _____ Retail

_____ Finance _____ Supply Chain Management

_____ General Business _____ International Business

_____ Information Systems _____ Undecided

_____ Management

9. How would you rate your current level of technological skill? (Check One)

_____ **Novice**: Know how to do basic computer functions; can use basic functions in a few software programs, have basic Internet skills such as opening and navigating web sites, and receiving emails, and using keyword search engines.

_____ **Fairly Skilled:** Know how to do most things. I can function skillfully in a variety of software, and can perform such Internet functions as advanced searches, plug-in download, and install, and navigate web-sites using search engines.

_____ **Power User:** Can do advanced software and hardware tuning, modify systems settings, and install new hardware components, am a sophisticated user of a variety of high-end software, and can create my own WebPages.

High School Information

10. What kind of class schedule did you have in high school?

_____ Normal/Hourly Schedule (e.g. 40-60 minute classes, rotating daily)

_____ Block schedule (e.g. longer class times, not necessarily same class every day)

11. Prior to college, have you ever taken a strictly online course? (Yes/No)

12. Did you complete any career technical courses while still enrolled in high school? (e.g. vocational education based on occupation or employment skills – engineering, welding, accounting, nursing, etc). (Yes/No)

13. What instructional strategies did you experience in high school? (Check all that apply)

☐ Reading based discussion
☐ PowerPoint/traditional lecture
☐ Other _____
☐ Independent study
☐ Lab based instruction

Current Learning Strategies

14. On a scale of 1-5, How well do you think your current learning strategies meet your educational goals?

My strategies do not usually work well for me	My strategies sometimes do not work well for me	My strategies neither work well or bad for me	My strategies sometimes work well for me.	My strategies almost always work well for me.
1	2	3	4	5
☐	☐	☐	☐	☐

Technology & Learning

15. On a scale of 1-5, how frequently do you use these technologies for any kind of learning?

Technology	Once Daily 1	Bi-Weekly 2	Once Weekly 3	Once Monthly 4	Never Use 5
Search for information with a Smartphone	☐	☐	☐	☐	☐
Search for information with an iPad	☐	☐	☐	☐	☐
Use apps on a smartphone or iPad	☐	☐	☐	☐	☐
Search for information on the internet using any device other than a phone or iPad	☐	☐	☐	☐	☐
Check your school email	☐	☐	☐	☐	☐
Read a blog	☐	☐	☐	☐	☐
Comment on a blog	☐	☐	☐	☐	☐
Read a long, detailed web page	☐	☐	☐	☐	☐
Play a strategy game on a computer	☐	☐	☐	☐	☐
Play a strategy game on a smartphone or iPad	☐	☐	☐	☐	☐
Read an e-book	☐	☐	☐	☐	☐

16. How important are these educational technologies to your classroom learning?

Technology	Crucial 1	Sometimes Useful 2	Rarely Useful 3	Not Necessary 4	Not Used 5
Overhead Projector	☐	☐	☐	☐	☐
Laptop Computer	☐	☐	☐	☐	☐
Calculator	☐	☐	☐	☐	☐
Smartphone	☐	☐	☐	☐	☐
iPad	☐	☐	☐	☐	☐
Blackboard Collaborate	☐	☐	☐	☐	☐
Learning Management System (such as Blackboard)	☐	☐	☐	☐	☐

17. How often are these educational technologies **used by your instructor** in your classroom learning?

Technology	Every Class 1	Once a Week 2	Once a Month 3	Rarel 4	Not Used 5
Overhead Projector	☐	☐	☐	☐	☐
Laptop Computer	☐	☐	☐	☐	☐
Calculator	☐	☐	☐	☐	☐
Smartphone	☐	☐	☐	☐	☐
iPad	☐	☐	☐	☐	☐
Blackboard Collaborate	☐	☐	☐	☐	☐
Learning Management System (such as Blackboard)	☐	☐	☐	☐	☐

18. Is there anything further you would like to contribute about how technology influences your ability to learn? (Open response)

Social Media Usage & Learning

19. Have any of your courses (high school or college) utilized social media (e.g. Facebook, Twitter, etc) for learning? Yes/No

20. How many times a day do you access Facebook? (Drop Down)

_____ 6 or more times daily _____ 1-5 times daily

_____ Typically once a week _____ Never

21. Do you currently use an online blog service? (Yes/No)

22. Have you ever used Wikipedia or some form of a wiki (e.g. wikispaces.com) for a course? (Yes/No)

23. How frequently do you use Twitter or Facebook to follow upcoming university events?

____Frequently ____ Some ____ Never

(Daily) (Once a week)

24. Do you tweet? (Yes/No)

25. If yes, how often?

____Frequently ____ Some ____ Rarely

(Daily) (Once a week or 2 weeks) (once a month or less)

26. If yes, how frequently do you use Twitter feeds to follow trends in your current area(s) of interest?

____Often ____ Some ____ Rarely

(Daily) (Once a week or 2 weeks) (once a month or less)

27. Imagine that you need to contact your professor for an appointment. Would you prefer to call, text, email, instant message or Facebook? (Drop down – Call, Text, Email, Instant Message, Facebook)

Expectations of College

28. What types of instructional strategies did you expect of your first semester of college? (Check all that apply)

- ☐ Reading based discussion
- ☐ PowerPoint/traditional lecture
- ☐ Other _____
- ☐ Independent study
- ☐ Lab based instruction

29. Were the instructional strategies (like those listed above) the same or different from high school experiences? (Drop down – College Experiences Same As High School/College Experiences Different Than High School)

30. What is one thing about college that has surprised you? (Open response)

31. Describe your overall satisfaction with your college courses. (Open response)

32. What things are helping you the most as a new college student? (Open response)

33. What do you enjoy most about your courses? (Open response)

Request for Further Contact

34. Would you be interested in being contacted for any follow-up interviews to be determined at a later date? (Email below will be used for contact) (Yes/No)

35. Please provide your email address to be entered into drawing for iTunes gift card. (Email will be removed from responses for analysis.) (Open response)

APPENDIX B

Attitudes Toward Thinking and Learning Survey (ATTLS)

Directions: Indicate your level of agreement with the following on the 7-point scale. You do not need to dwell on each statement; give the first response that comes to mind.

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7

1. When I encounter people whose opinions seem alien to me, I make a deliberate effort to "extend" myself into that person, to try to see how they could have those opinions.	1	2	3	4	5	6	7
2. I can obtain insight into opinions that differ from mine through empathy.	1	2	3	4	5	6	7
3. I tend to put myself in other people's shoes when discussing controversial issues, to see why they think the way they do.	1	2	3	4	5	6	7
4. I'm more likely to try to understand someone else's opinion than to try to evaluate it.	1	2	3	4	5	6	7
5. I try to think with people instead of against them.	1	2	3	4	5	6	7
6. I feel that the best way for me to achieve my own identity is to interact with a variety of people.	1	2	3	4	5	6	7
7. I always am interested in knowing why people say and believe the things they do.	1	2	3	4	5	6	7
8. I enjoy hearing the opinions of people who come from backgrounds different from mine – it helps me understand how the same things can be seen in such different ways.	1	2	3	4	5	6	7
9. The most important part of my education has been learning to understand people who are very different from me.	1	2	3	4	5	6	7

10. I like to understand where other people are "coming from," what experiences have led them to feel the way they do.	1	2	3	4	5	6	7
11. I like playing devil's advocate—arguing the opposite of what someone is saying.	1	2	3	4	5	6	7
12. It's important for me to remain as objective as possible when I analyze something.	1	2	3	4	5	6	7
13. I try to listen to other people's positions with a critical eye.	1	2	3	4	5	6	7
14. I find that I can strengthen my own position through arguing with someone who disagrees with me.	1	2	3	4	5	6	7
15. One could call my way of analyzing things "putting them on trial," because of how careful I am to consider all of the evidence.	1	2	3	4	5	6	7
16. I often find myself arguing with the authors of books I read, trying to logically figure out why they're wrong.	1	2	3	4	5	6	7
17. I have certain criteria I use in evaluating arguments.	1	2	3	4	5	6	7
18. I try to point out weakness in other people's thinking to help them clarify their arguments.	1	2	3	4	5	6	7
19. I value the use of logic and reason over the incorporation of my own concerns when solving problems.	1	2	3	4	5	6	7
20. I spend time figuring out what's "wrong" with things; for example, I'll look for something in a literary interpretation that isn't argued well enough.	1	2	3	4	5	6	7

APPENDIX C

Participant Information Sheet

TITLE: Relationship of Social Media & Rapidly Evolving Technology on Approaches to Learning in the Digital Native Generation

INVESTIGATOR: Brittany M. Bright, Oklahoma State University
Dr. Mary Jo Self, Oklahoma State University

PURPOSE:
This research is being conducted by Brittany M. Bright with the intention of identifying the role of social media and rapidly evolving technology on the instructional design for future generation college students based on the opinions of University of Arkansas students. Your opinion is extremely valuable to the study and your input will provide the research with the most prevalent information needed to complete the work.

PROCEDURES:
Specifically, I am asking you to respond to a set of demographic questions (age, gender, technical experience, use of technology, use of social media for learning, and expectations in college courses), to rate a group of 20 questions on identifying attitudes toward learning a scale from 1 to 7, and to answer 5 questions on identifying learning strategies. This will allow me as the researcher to identify the importance of these ideas in designing courses to foster growth of student learning. The survey should take no longer than 20-30 minutes.

CONFIDENTIALITY:
If you consent to participant in this study, your responses will be submitted over the Internet, and your name will not be associated with your answers in any way. All information that is provided will be held in the strictest of confidence. It is very important that you realize that:

1. Your participation is voluntary.
2. You will not be penalized in any way if you choose not to participate. Your non-participation in the study will not impact your grade as a student in the Freshman Business Connections course.
3. You are free to withdraw your consent to participate in this study at any time.
4. Your involvement in this project will only involve completing responses for the demographic information, the rating of the 20 questions on attitudes toward learning, and the answering of the final 5 questions on identifying learning strategies.
5. It is not anticipated that you will suffer any risks of discomfort or inconvenience from this participation.
6. A drawing will be held for a $50 iTunes gift card using the email provided as the primary contact information for winner.

RISKS OF PARTICIPATION:
There are no risks associated with this study which are expected to be greater than those encountered in daily life.

CONTACTS:
You may contact any of the researchers at the following addresses and phone numbers should you desire to discuss your participation in the study and/or request information about the results of the study.

Brittany Bright
WCOB 210
1 University of Arkansas
Fayetteville, AR 72701
brittany.bright@okstate.edu or
(479) 575-6121

Dr. Mary Jo Self
College of Education
261 Willard Hall
Stillwater, OK 74078
maryjo.self@okstate.edu or
(405) 744-9191

If you have any questions about your right as a research volunteer, you may contact the IRB Chair, Dr. Shelia Kennison, for Oklahoma State University.

Dr. Shelia Kennison
IRB Chair
219 Cordell North
Stillwater, OK 74078
405-744-3377 or irb@okstate.edu

PARTICIPANT RIGHTS:
I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty.

CONSENT:
By clicking on the link below, you (1) will be giving your "electronic signature" as consent to participate in the study and (2) will be linked to the questions used in this study.

It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study. Choose Yes/No

APPENDIX D

Communication with Students

Dear University of Arkansas Students,

Understanding how students learn is important to the growth and understanding of education and design of courses to foster learning. Little research has been performed in understanding the role that rapidly evolving technology and social media has played in the learning process for students, if any. Were your expectations of college different than what you expected coming from high school? Why do you think that might be? Please take this opportunity to share your experiences and allow learning to come from them.

I am seeking to help get a better idea of the types of learning strategies and technologies that students expect from their education to aid their learning experience. The purpose of this study is to identify the role that technology and social media currently plays in the learning process and how to better utilize these to foster the growth of learning. Although participation in this study is voluntary, your input is vital to making this study possible. The survey should take no longer than 20-30 minutes to complete. Your responses will be kept completely confidential.

By providing your email address when prompted in the survey, you will be eligible for entrance into a drawing for a $50 iTunes gift card. If you are willing to participate in this survey please click on the following link:

Click Here to Participate in this Study

Thank you for your participation,

Brittany Bright

APPENDIX E

Permission to Conduct Research

November 20, 2013

Brittany M. Bright
Oklahoma State University, Doctoral Student
PO Box 11648
Fort Smith, AR 72917
Cell: (479) 997- 5132

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

Dear Dr. Karen Boston:

My name is Brittany Bright and I am a doctoral student at Oklahoma State University in the Occupational Education department. The research I wish to conduct for my doctoral dissertation involves the exploration of the Relationship of Social Media and Rapidly Evolving Technology on Approaches to Learning in the Digital Native Generation. This project will be conducted under the supervision of Dr. Mary Jo Self (Oklahoma State University, Stillwater).

I am hereby seeking your consent to approach students enrolled in the Freshman Business Connections course (WCOB 1111) in the Walton College of Business for the fall 2013 semester as participants in this study.

I have provided you with a copy of the consent form to be used in the research process (online through Qualtrics) as well as a copy of the instrumentation to be used.

Upon completion of the study, I undertake to provide you with a bound copy of the full research report. If you require any further information, please do not hesitate to contact me. Thank you for your time and consideration in this matter.

Best Regards,

Brittany M. Bright
Oklahoma State University, Doctoral Student

UNIVERSITY OF ARKANSAS

November 20, 2013

Sam M. Walton College of Business
Undergraduate Programs Office

IRB/University Research Compliance
Oklahoma State University
219 Cordell North
Stillwater, OK 74078-1038

Sam M. Walton College of Business
University of Arkansas
Business Building 328
Fayetteville, AR 72701

Dear Human Subjects Committee,

Please note that Ms. Brittany Bright, OSU Graduate Student, has the permission of the University of Arkansas to conduct research at our Fayetteville campus in the Sam M. Walton College of Business for her study of the , "Relationship of Social Media and Rapidly Evolving Technology on Approaches to Learning in the Digital Native Generation" with our Freshman Business Connections course.

After IRB approval has been provided, the following will proceed:

1. I will forward the IRB approval and email correspondence provided by Ms. Bright to the Director of Undergraduate Programs.
2. The Director of Undergraduate Programs will then forward the information and email correspondence to the Freshman Business Connections instructors.
3. The Freshman Business Connections instructors will then send Ms. Bright's email correspondence to their students in request to participate in the study.

Ms. Bright's plan is to have the needed data collection completed by completion of final exams on December 19, 2013. Ms. Bright has also agreed to provide a copy of the Oklahoma State University approved IRB consent document prior to students being contacted to participate in the survey. Upon completion of the study, she has also agreed to provide any aggregate results to the department.

I support this effort and will provide any assistance necessary for the successful implementation of this study. If you have any questions, please do not hesitate to call my office. I can be reached at (479) 575-6308.

Sincerely,

Karen M. Boston, Ed.D.
Assistant Dean for Undergraduate Programs

Figure E1. Above is the signed letter from the assistant dean for undergraduate programs at the university granting permission to survey students in the business college for this study.

APPENDIX F

OSU IRB Approval Letter

Oklahoma State University Institutional Review Board

Date:	Wednesday, November 27, 2013
IRB Application No	ED13189
Proposal Title:	Relationship of Social Media & Rapidly Evolving Technology on Approaches to Learning in the Digital Native Generation
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 11/26/2016

Principal Investigator(s):

Brittany M. Bright
P.O. Box 11648
Fort Smith, AR 72917

Mary Jo Self
261 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

X The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia H. Kennison

Shelia Kennison, Chair
Institutional Review Board

Figure F1. Above is the signed OSU IRB approval letter for the initial data collection in this study for the Fall 2013 semester.

Oklahoma State University Institutional Review Board

Date:	Tuesday, October 21, 2014	Protocol Expires:	11/26/2016
IRB Application No:	ED13189		
Proposal Title:	Relationship of Social Media & Rapidly Evolving Technology on Approaches to Learning in the Digital Native Generation		
Reviewed and Processed as:	Exempt **Modification**		
Status Recommended by Reviewer(s)	**Approved**		

Principal Investigator(s):

Brittany M. Bright
P.O. Box 11648
Fort Smith, AR 72917

Mary Jo Self
261 Willard
Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Modification to change end date of data collection to 1/31/15.

Signature :

Hugh Crethar, Chair, Institutional Review Board

Tuesday, October 21, 2014
Date

Figure F2. Above is the signed OSU Modified IRB approval letter for the data collection in this study for the Fall 2014 semester.

VITA

Brittany Michelle Bright

Candidate for the Degree of

Doctor of Philosophy

Dissertation: RELATIONSHIP OF SOCIAL MEDIA AND RAPIDLY EVOLVING TECHNOLOGY ON APPROACHES TO LEARNING IN THE MILLENNIAL GENERATION

Major Field: Education: Workforce and Adult Education

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy/Education in Education: Workforce and Adult Education at Oklahoma State University, Stillwater, Oklahoma in May 2018.

Completed the requirements for the Master of Science in Information Systems at University of Arkansas, Fayetteville, Arkansas in 2009.

Completed the requirements for the Bachelor of Science in Information Technology at University of Arkansas-Fort Smith, Fort Smith, Arkansas in 2007.

Experience:

University of Arkansas-Fort Smith – Instructor August 2016 – Present
As an employee at UAFS, I am a full-time faculty member in the Computer and Information Sciences department.
University of Arkansas – Fayetteville – Instructor May 2013 – August 2016
In May 2013, I become a full-time faculty member at UARK in the Information Systems department.
University of Arkansas – Fayetteville – Adjunct Faculty August 2009 – May 2013
University of Arkansas-Fort Smith – Adjunct Faculty August 2008 – May 2013